

# *Crash rates and costs*



## Crash reporting rates

The ratio of 'reported serious injuries' can be assessed by comparing seriously injured casualty numbers from Police crash reports to hospital admissions, given that a serious injury is generally one requiring hospital attention.

Figure 1.1 below indicates the serious injury reporting rate for each region.

**Figure 1.1 Reporting rate serious injuries to hospital admissions**

<b>Region</b>	<b>1997 1999</b>	<b>2001 2002</b>	<b>2002 2003</b>	<b>2003 2004</b>	<b>2004 2005</b>
Northland	41%	52%	54%	59%	68%
Auckland	63%	63%	67%	67%	67%
Waikato	58%	65%	69%	68%	75%
Bay of Plenty	48%	54%	63%	60%	63%
Gisborne	53%	56%	56%	60%	55%
Hawkes Bay	57%	65%	72%	73%	79%
Taranaki	69%	70%	75%	70%	73%
Manawatu-Wanganui	64%	67%	63%	62%	69%
Wellington	62%	56%	65%	63%	72%
Nelson-Marlborough	74%	67%	72%	68%	71%
West Coast	58%	64%	71%	62%	70%
Canterbury	68%	69%	69%	68%	69%
Otago	62%	79%	79%	77%	83%
Southland	55%	68%	68%	61%	73%
<b>New Zealand</b>	60%	64%	67%	67%	<b>70%</b>

These variations in reporting rates need to be considered when viewing the trends in crashes and casualties shown in this report.

**Figure 1.2 Crashes per 100 million vehicle kilometres travelled**

	Local roads		State highways	
	Urban	Rural	Urban	Rural
Southland Region S.H.	72	34	51	26
Group Y	39	28	30	21
All NZ	36	26	32	16

**Figure 1.3 Casualties per 100 million vehicle kilometres travelled**

	Local roads		State highways	
	Urban	Rural	Urban	Rural
Southland Region S.H.	103	54	71	44
Group Y	50	40	40	33
All NZ	46	38	43	25

**Figure 1.4 Peer group crash and casualty rates**
**Regions**

Region name	Crashes per					Casualties per					2007 Population	% of rural crashes
	10,000 Population (5 year average)	100 million vehicle kilometres travelled				10,000 Population (5 year average)	100 million vehicle kilometres travelled					
		Local roads		State highways			Local roads		State highways			
	Urban	Rural	Urban	Rural		Urban	Rural	Urban	Rural			
Auckland	23	34	28	50	13	30	43	40	69	19	1394000	28
Bay of Plenty	21	26	25	25	17	31	33	39	35	28	267700	49
Gisborne	24	36	20	34	23	33	44	29	52	35	45900	47
Hawkes Bay	32	44	31	32	21	45	55	48	45	34	152500	48
Manawatu Wanganui	27	36	22	28	17	39	43	35	37	27	229000	54
Nelson Marlborough	77	44	17	29	19	103	53	26	36	28	44400	51
Southland	45	72	34	51	26	69	103	54	71	44	93000	49
Greater Wellington	20	33	29	38	11	26	40	41	51	17	470300	29
Canterbury	24	34	18	22	13	32	43	26	29	19	546900	31
Chathams	75	n/a	n/a	n/a	n/a	94	n/a	n/a	n/a	n/a	640	n/a
Northland	33	35	32	34	26	48	46	46	47	39	153800	69
Otago	44	70	44	47	24	66	98	67	66	38	201700	45
Taranaki	28	42	30	32	23	39	56	44	40	35	107200	52
Waikato	30	39	21	25	16	42	50	29	35	26	398600	59
West Coast	34	31	16	34	20	50	44	24	45	30	32200	74
All Regions	27	36	26	32	16	37	46	38	43	25	4137840	41
All New Zealand	26	36	26	32	16	36	46	38	43	25	4227700	41

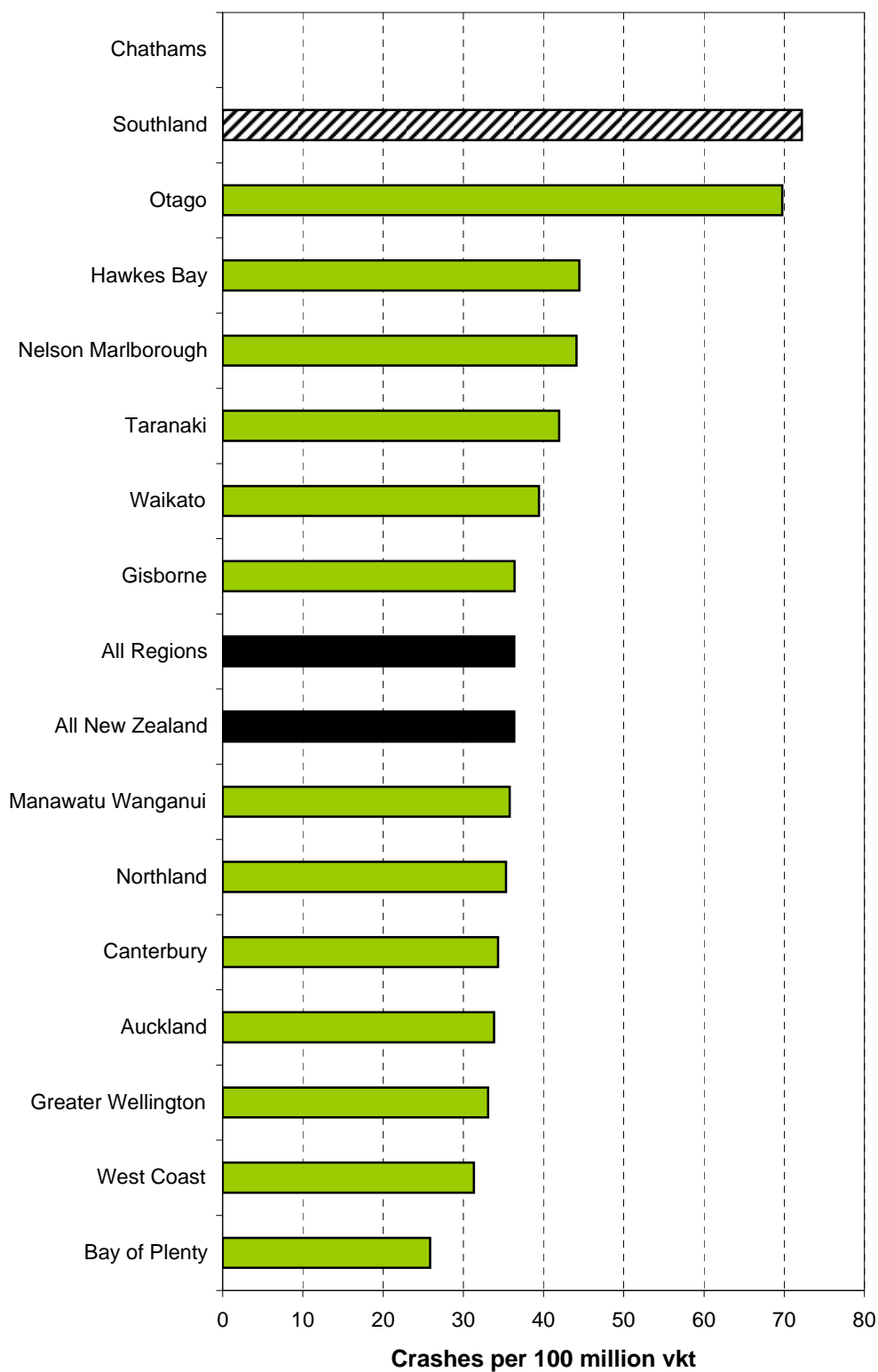
Differences in All New Zealand and All Region totals due to individual rounding.

N/A : Denotes that data for vehicle kilometres travelled (VKT) is not available or inappropriate for some categories.

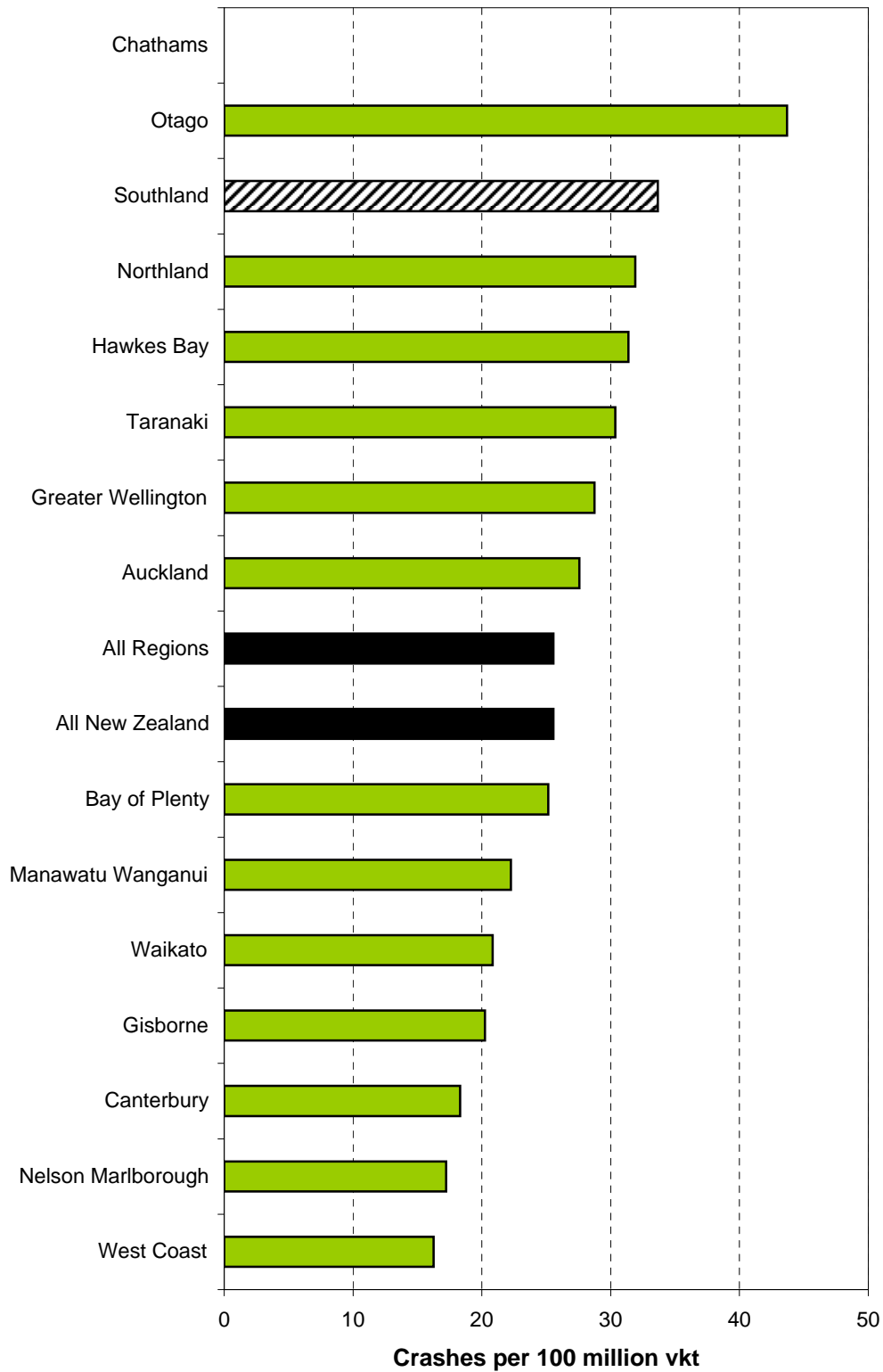
Crashes and casualties per 100 million VKT are based on five years of reported injury on-road crash data (2003-2007) and December (2005) VKT.

Crashes and casualties per 10,000 population are based on five year average crash data (2003-2007) and Statistics NZ 2006 population estimates.

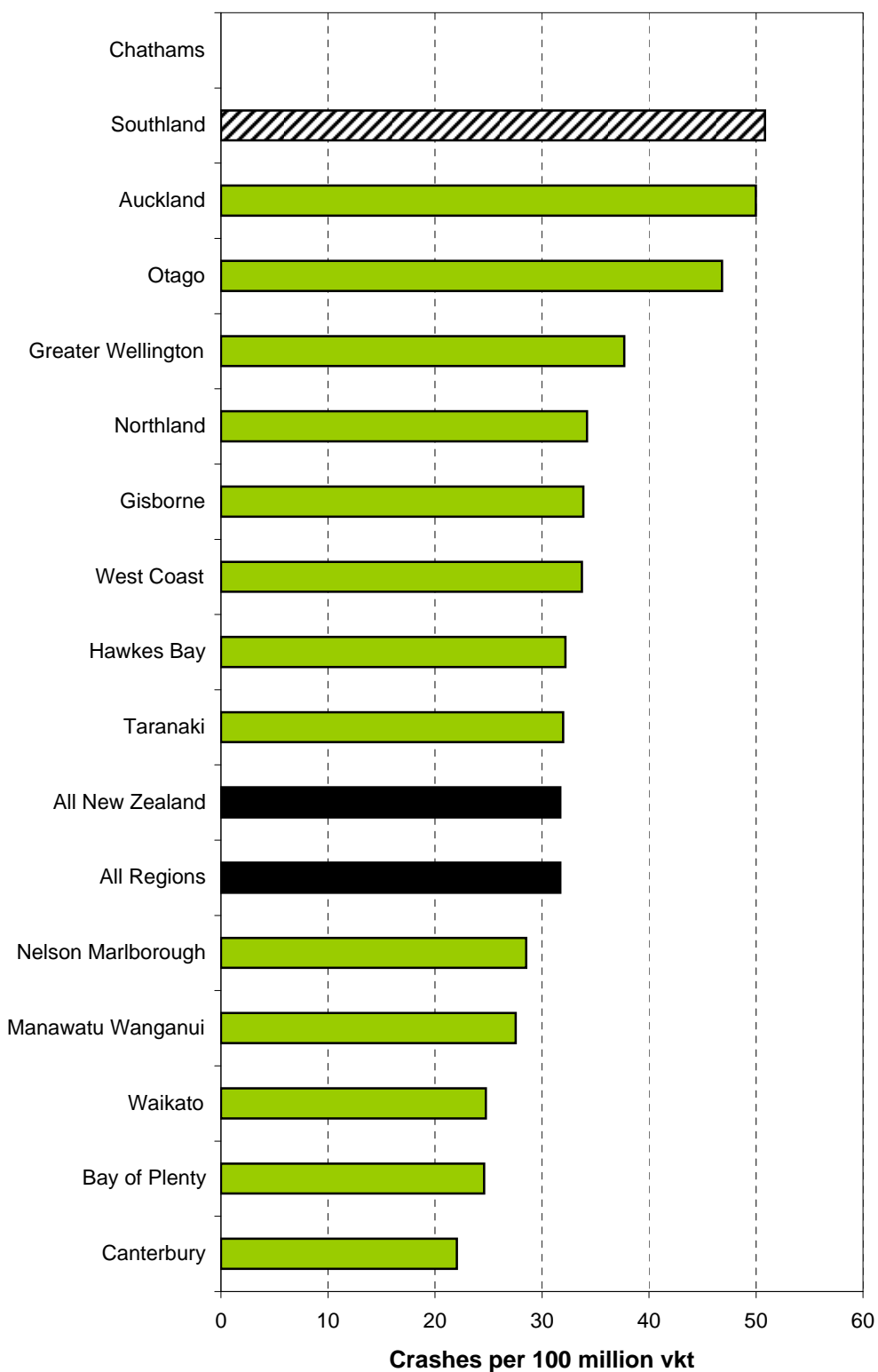
**Figure 1.5 Crashes per 100 million vehicle-kilometres travelled - urban local roads**



**Figure 1.6 Crashes per 100 million vehicle-kilometres travelled - rural local roads**

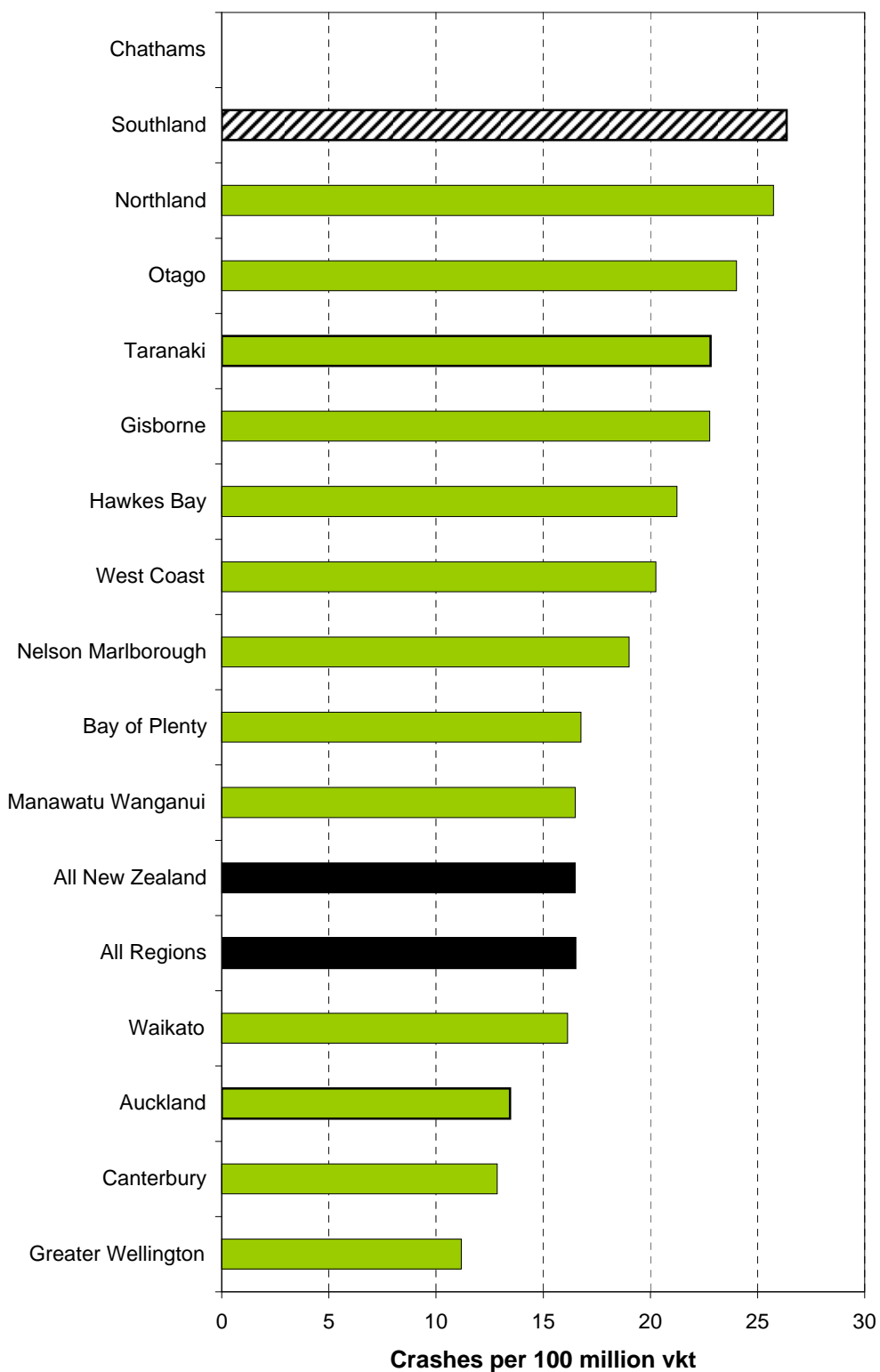


**Figure 1.7 Crashes per 100 million vehicle kilometres travelled - urban state highways**

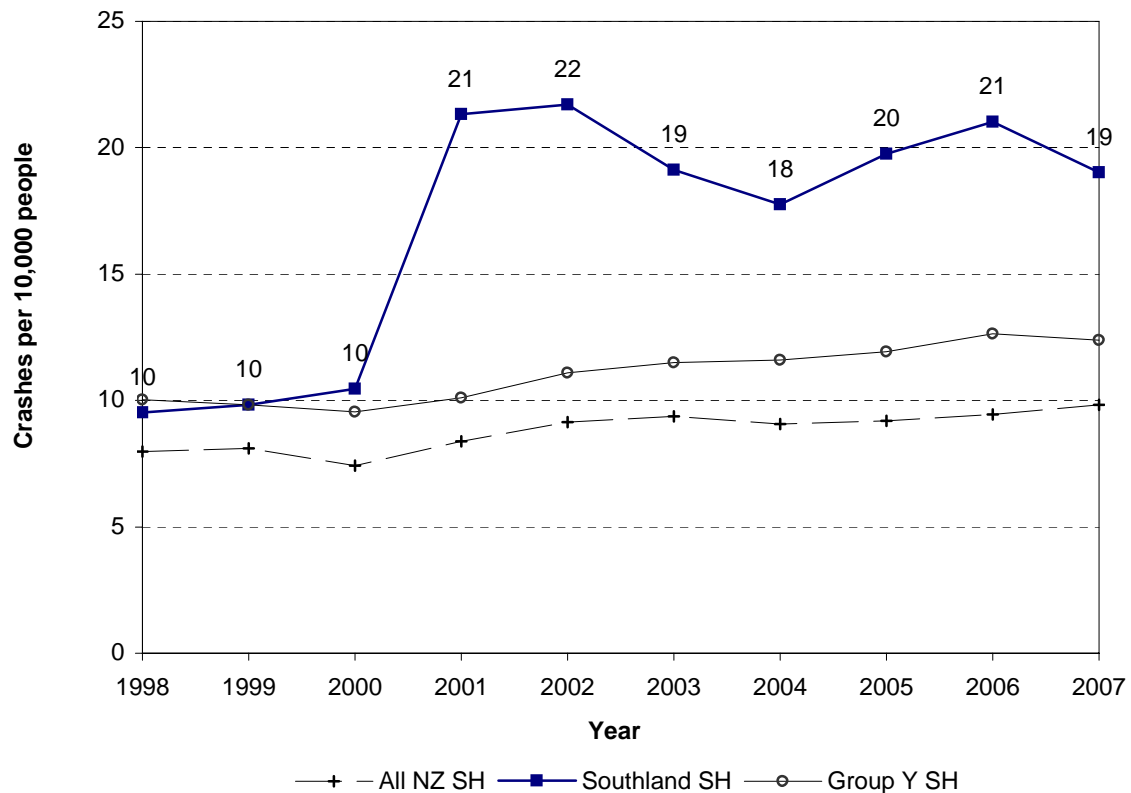




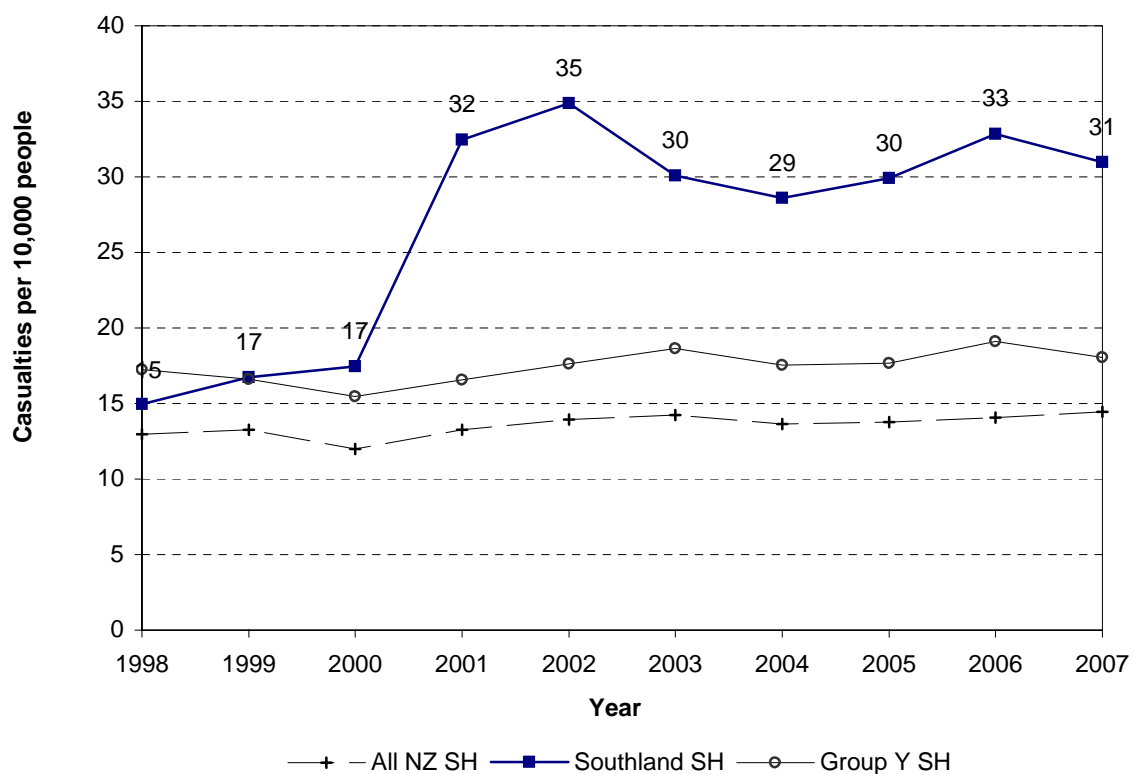
**Figure 1.8 Crashes per 100 million vehicle-kilometres travelled  
- rural state highways**



**Figure 1.9 Crashes per 10,000 people  
Southland Region state highways**



**Figure 1.10 Casualties per 10,000 people  
Southland Region state highways**



**Figure 1.11 Social cost of crashes in Southland Region in 2007**

		Southland Region	New Zealand
Local roads	urban	\$32.97	\$1,609.18
	rural	\$33.45	\$891.74
State highways	urban	\$14.87	\$323.26
	rural	\$47.32	\$1,533.31
Total		<b>\$128.62</b>	<b>\$4,357.48</b>

Note: Crash costs are in \$ millions

The social costs of a road crash and the associated injuries include a number of different elements:

- Loss of life and life quality
- Loss of output due to temporary incapacitation
- Medical costs
- Legal costs
- Property damage costs

The average value of a loss of life due to a road crash is estimated by the amount of money the New Zealand population would be willing to pay for a safety improvement that would result in the expected avoidance of one premature death. This is the willingness to pay based value of statistical life or VOSL. The VOSL was established at \$2 million in 1991. This has been indexed to the average hourly earnings (ordinary time) to express the value in current dollars. The updated VOSL is \$3.19 million (in June 2007 dollars). Based on several international and New Zealand studies on VOSL, the average loss of life quality for permanent impairments due to a serious and a minor injury were estimated to be 10% and 0.4% of the VOSL respectively.

Crash rates can vary due to reporting rates. These are adjusted on a regional basis in this report by comparing with hospitalisation rates.

The other social cost components are estimated based on a number of studies conducted during the early to mid-1990s and are updated for price changes by indexing to an appropriate price index.

For a detail discussion on this, please refer to 'The social cost of road crashes and injuries: June 2007 update', available at the Ministry of Transport's website:  
[http://www.transport.govt.nz/socialcost/Social-cost-June-2007-update\[1\].pdf](http://www.transport.govt.nz/socialcost/Social-cost-June-2007-update[1].pdf)

The average social cost per reported crash (in June 2007 dollars) are estimated at:

Rural fatal crash	\$4,016,000
Rural serious crash	\$735,000
Rural minor crash	\$88,000
Urban fatal crash	\$3,539,000
Urban serious crash	\$626,000
Urban minor crash	\$79,000

These values include an allowance for non-reported injury crashes, and the totals in Fig. 1.11 also include an allowance for non-injury crashes.



# *Crash counts*



**Figure 2.1: Crash numbers and severity 2003 to 2007 - whole Region**

	2003	2004	2005	2006	2007	Total	%	Group Y
Fatal crashes	5	4	4	6	7	26	3%	6%
Serious crashes	47	39	41	43	35	205	23%	21%
Minor crashes	128	124	140	147	135	674	74%	73%
Total injury crashes	<b>180</b>	<b>167</b>	<b>185</b>	<b>196</b>	<b>177</b>	<b>905</b>	<b>100%</b>	<b>100%</b>
Non-injury crashes	201	221	201	194	209	1026		

**Figure 2.2: Crash numbers and severity 2003 to 2007 - urban roads**

	2003	2004	2005	2006	2007	Total	%	Group Y
Fatal crashes	1	1	0	0	1	3	1%	2%
Serious crashes	11	10	10	11	10	52	17%	15%
Minor crashes	47	48	51	60	45	251	82%	83%
Total injury crashes	<b>59</b>	<b>59</b>	<b>61</b>	<b>71</b>	<b>56</b>	<b>306</b>	<b>100%</b>	<b>100%</b>
Non-injury crashes	112	98	112	85	110	517		

**Figure 2.3: Crash numbers and severity 2003 to 2007 - rural roads**

	2003	2004	2005	2006	2007	Total	%	Group Y
Fatal crashes	4	3	4	6	6	23	4%	7%
Serious crashes	36	29	31	32	25	153	26%	23%
Minor crashes	81	76	89	87	90	423	71%	70%
Total injury crashes	<b>121</b>	<b>108</b>	<b>124</b>	<b>125</b>	<b>121</b>	<b>599</b>	<b>100%</b>	<b>100%</b>
Non-injury crashes	89	123	89	109	99	509		

**Figure 2.4: Casualty numbers and severity 2003 to 2007 - whole Region**

	2003	2004	2005	2006	2007	Total	%	Group Y
Fatal casualties	8	4	4	6	7	29	2%	5%
Serious casualties	62	45	58	53	45	263	18%	19%
Minor casualties	213	220	218	247	236	1134	80%	76%
Total casualties	<b>283</b>	<b>269</b>	<b>280</b>	<b>306</b>	<b>288</b>	<b>1426</b>	<b>100%</b>	<b>100%</b>

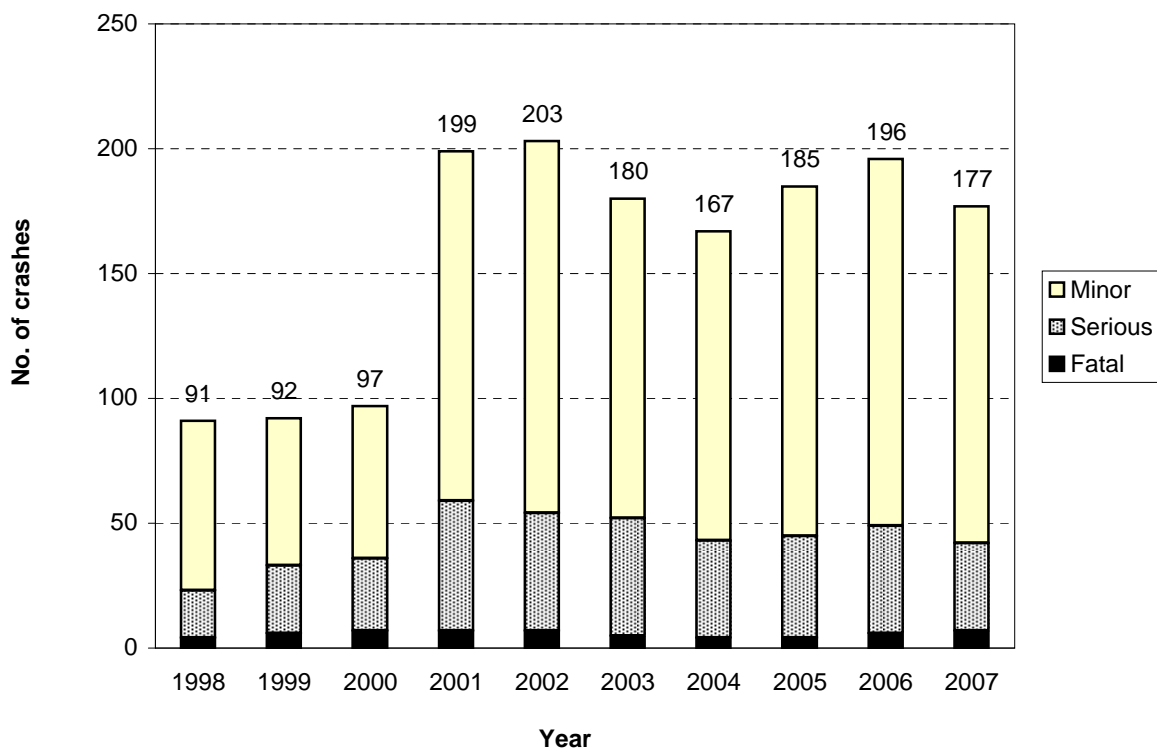
**Figure 2.5: Casualty numbers and severity 2003 to 2007 - urban roads**

	2003	2004	2005	2006	2007	Total	%	Group Y
Fatal casualties	1	1	0	0	1	3	1%	2%
Serious casualties	13	11	13	11	12	60	14%	13%
Minor casualties	64	75	71	80	73	363	85%	85%
Total casualties	<b>78</b>	<b>87</b>	<b>84</b>	<b>91</b>	<b>86</b>	<b>426</b>	<b>100%</b>	<b>100%</b>

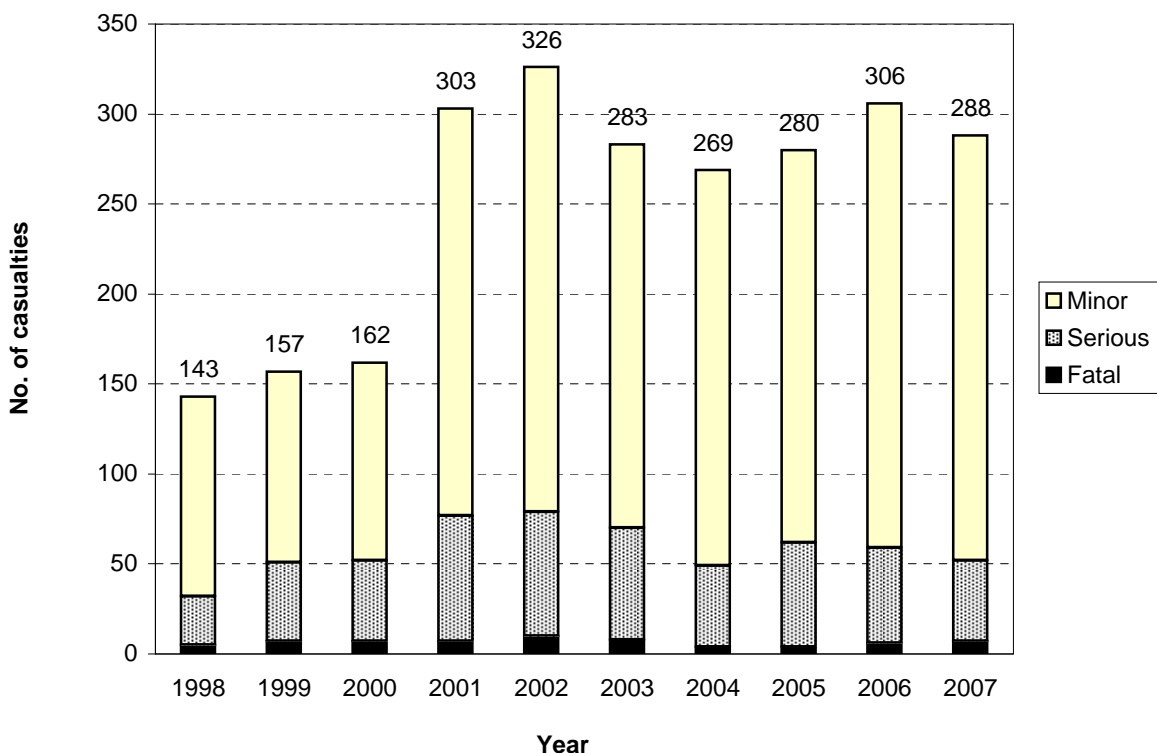
**Figure 2.6: Casualty numbers and severity 2003 to 2007 - rural roads**

	2003	2004	2005	2006	2007	Total	%	Group Y
Fatal casualties	7	3	4	6	6	26	3%	6%
Serious casualties	49	34	45	42	33	203	20%	21%
Minor casualties	149	145	147	167	163	771	77%	73%
Total casualties	<b>205</b>	<b>182</b>	<b>196</b>	<b>215</b>	<b>202</b>	<b>1000</b>	<b>100%</b>	<b>100%</b>

**Figure 2.7 Number of injury crashes**  
**Southland Region state highways (urban & rural)**

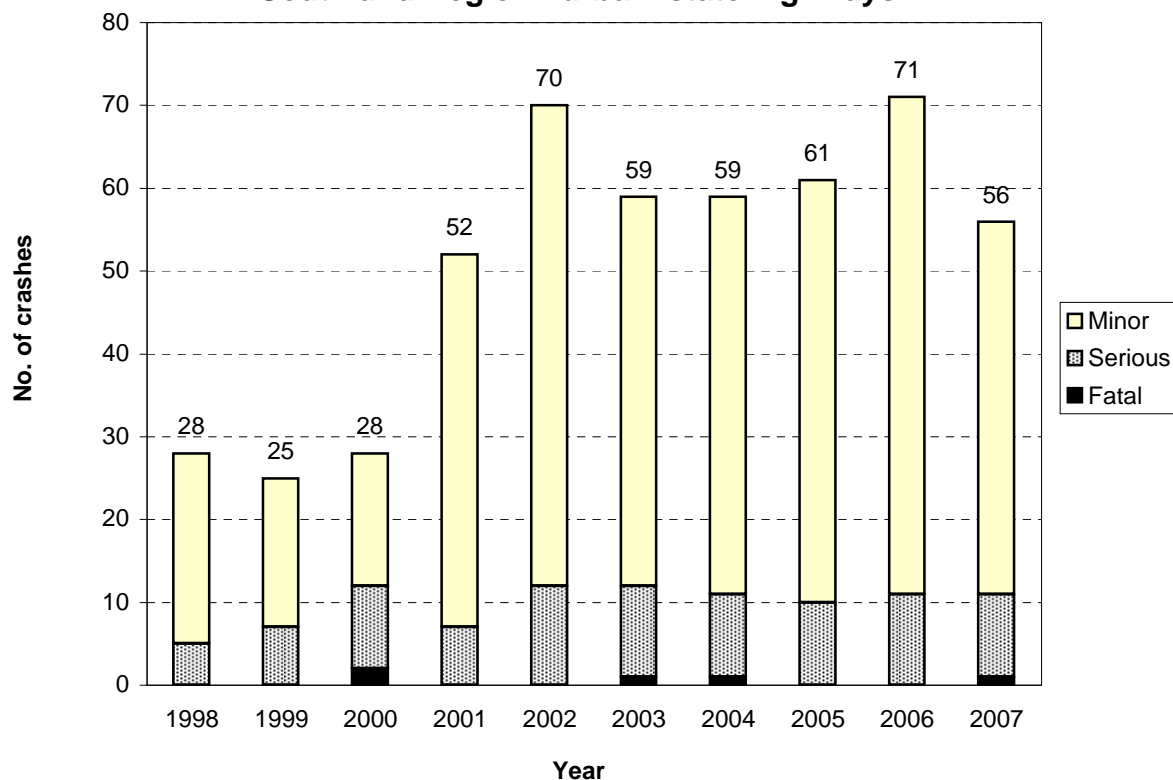


**Figure 2.8 Number of casualties**  
**Southland Region state highways (urban & rural)**

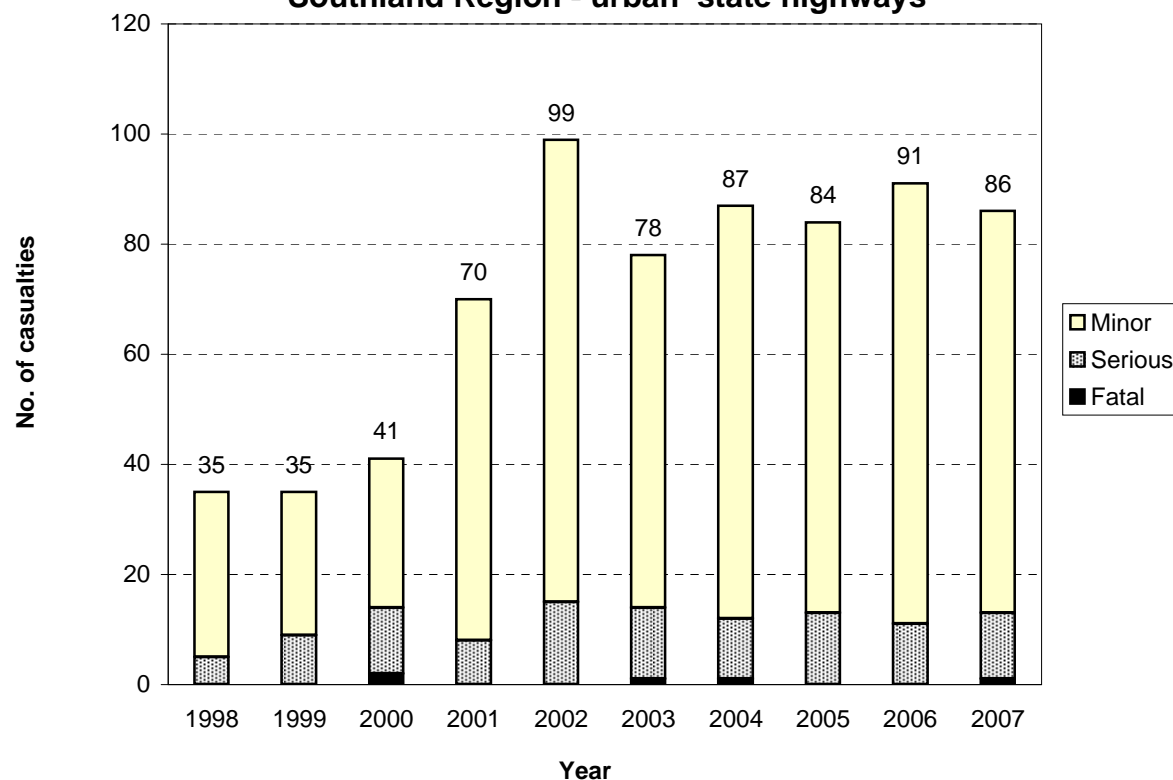




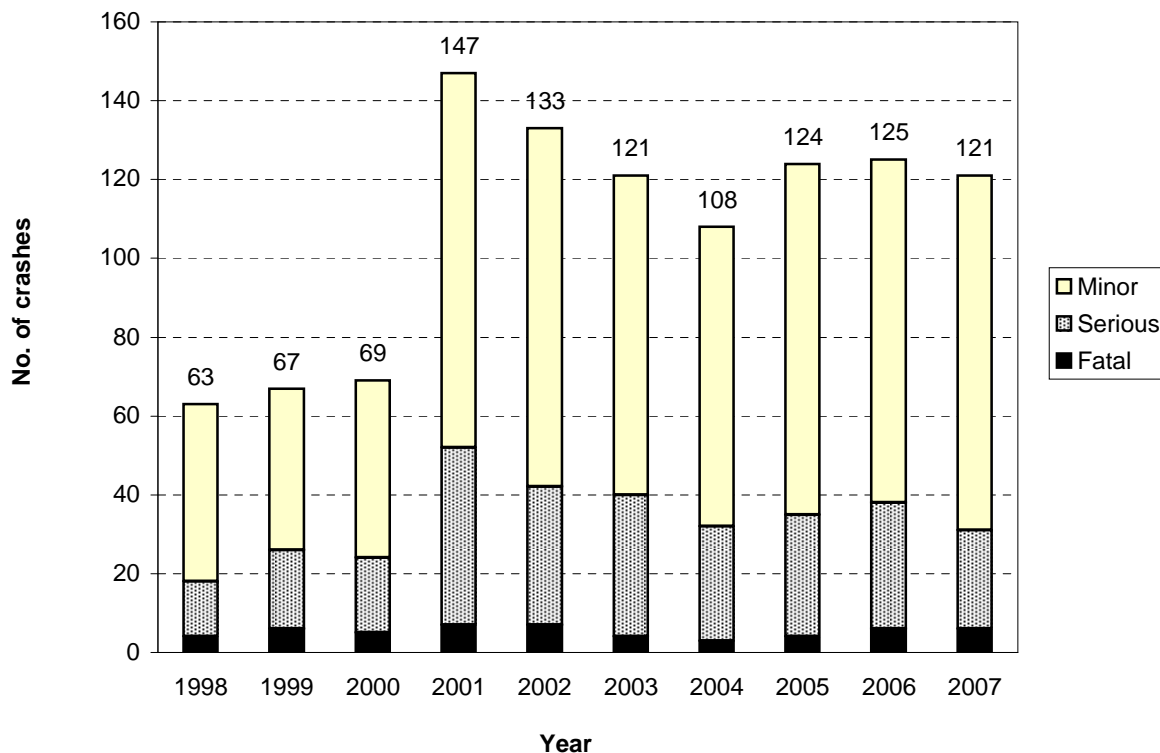
**Figure 2.9 Number of injury crashes  
Southland Region - urban state highways**



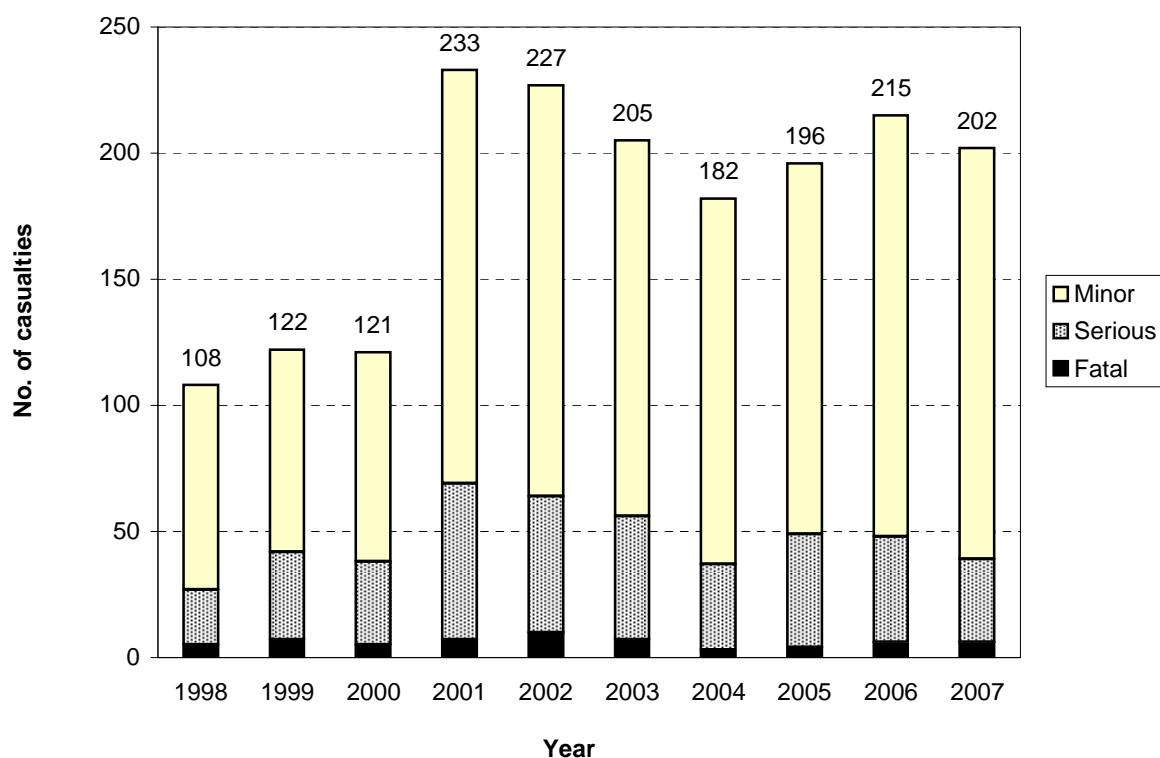
**Figure 2.10 Number of casualties  
Southland Region - urban state highways**



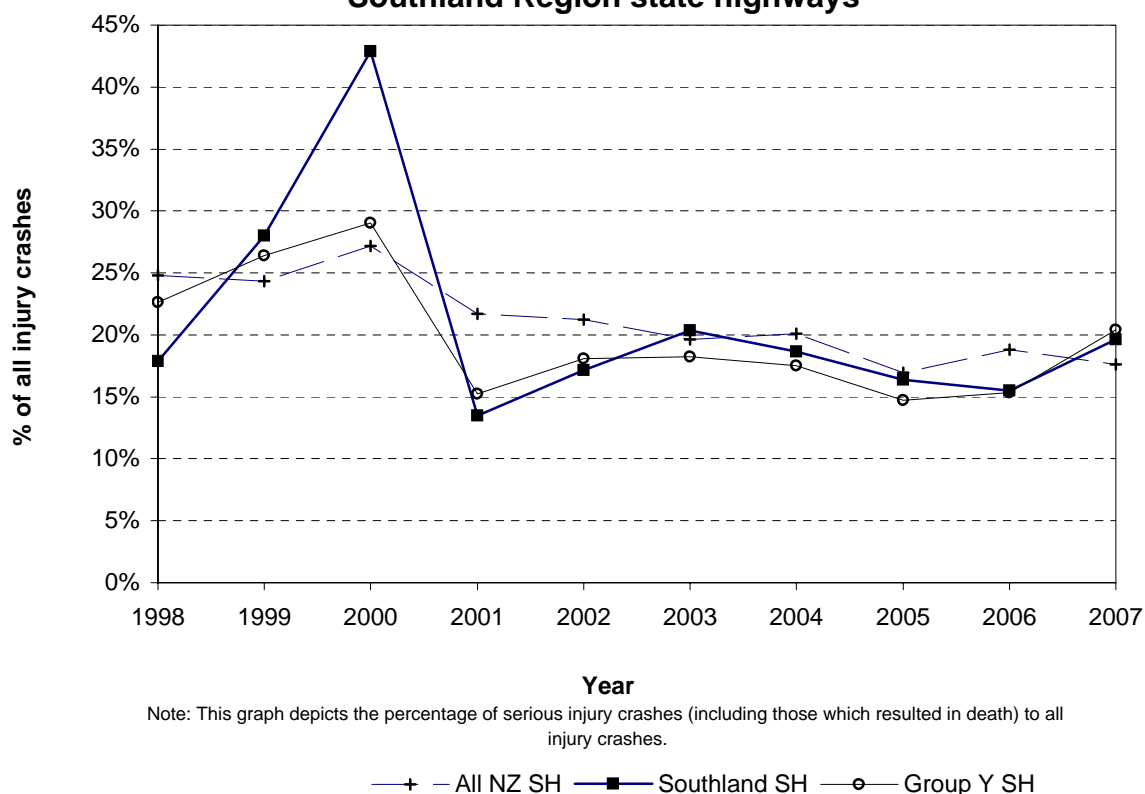
**Figure 2.11 Number of injury crashes  
Southland Region - rural state highways**



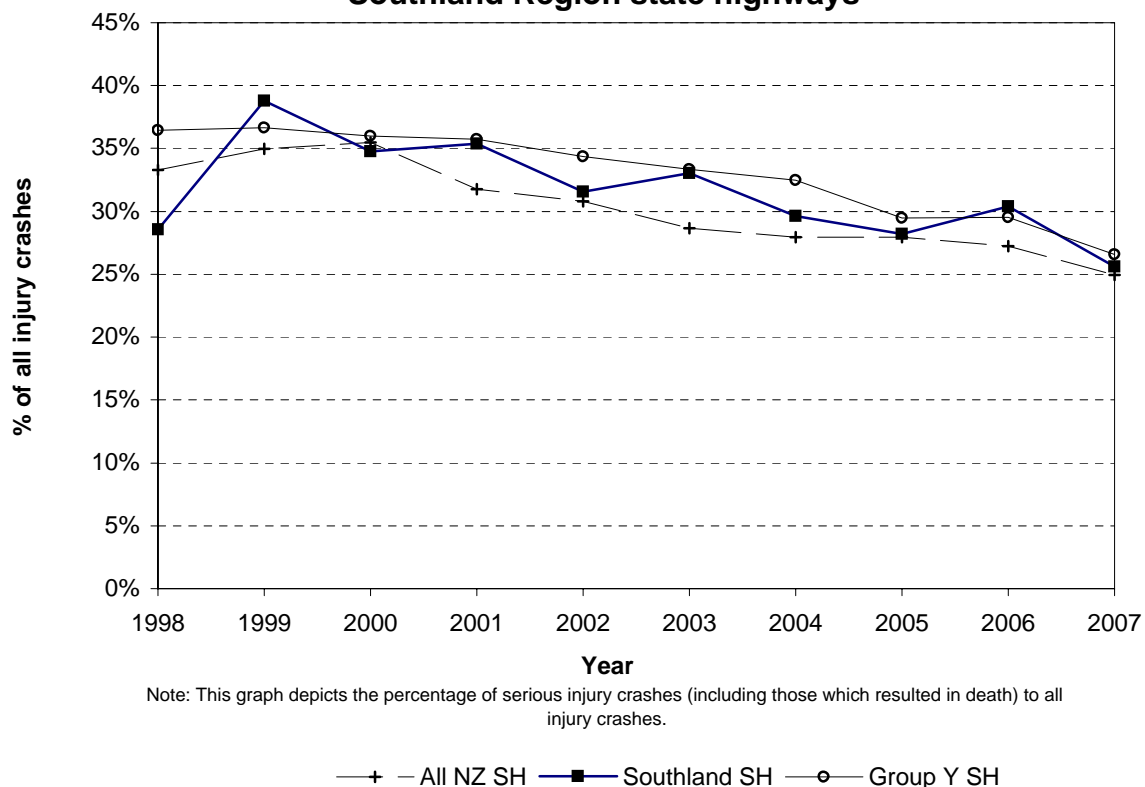
**Figure 2.12 Number of casualties  
Southland Region - rural state highways**



**Figure 2.13 Severity ratio - urban  
Southland Region state highways**



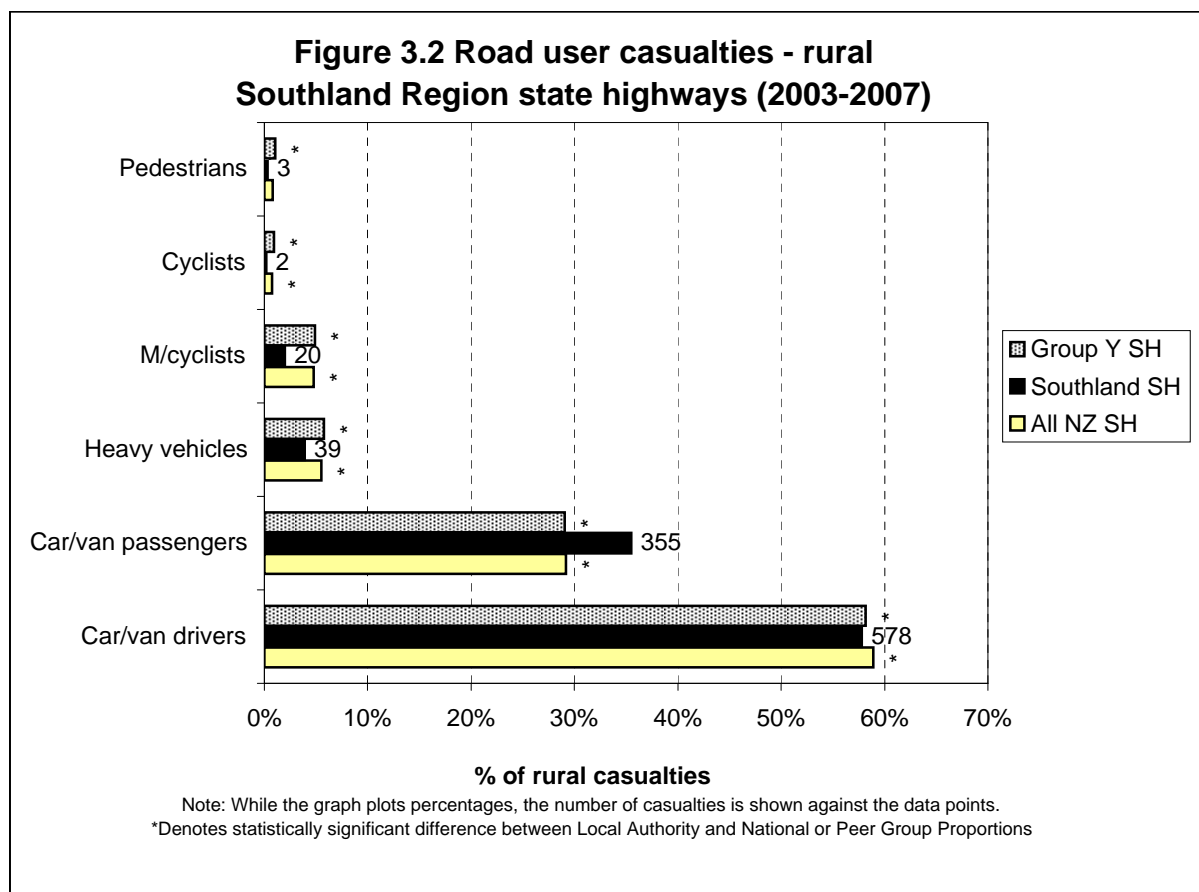
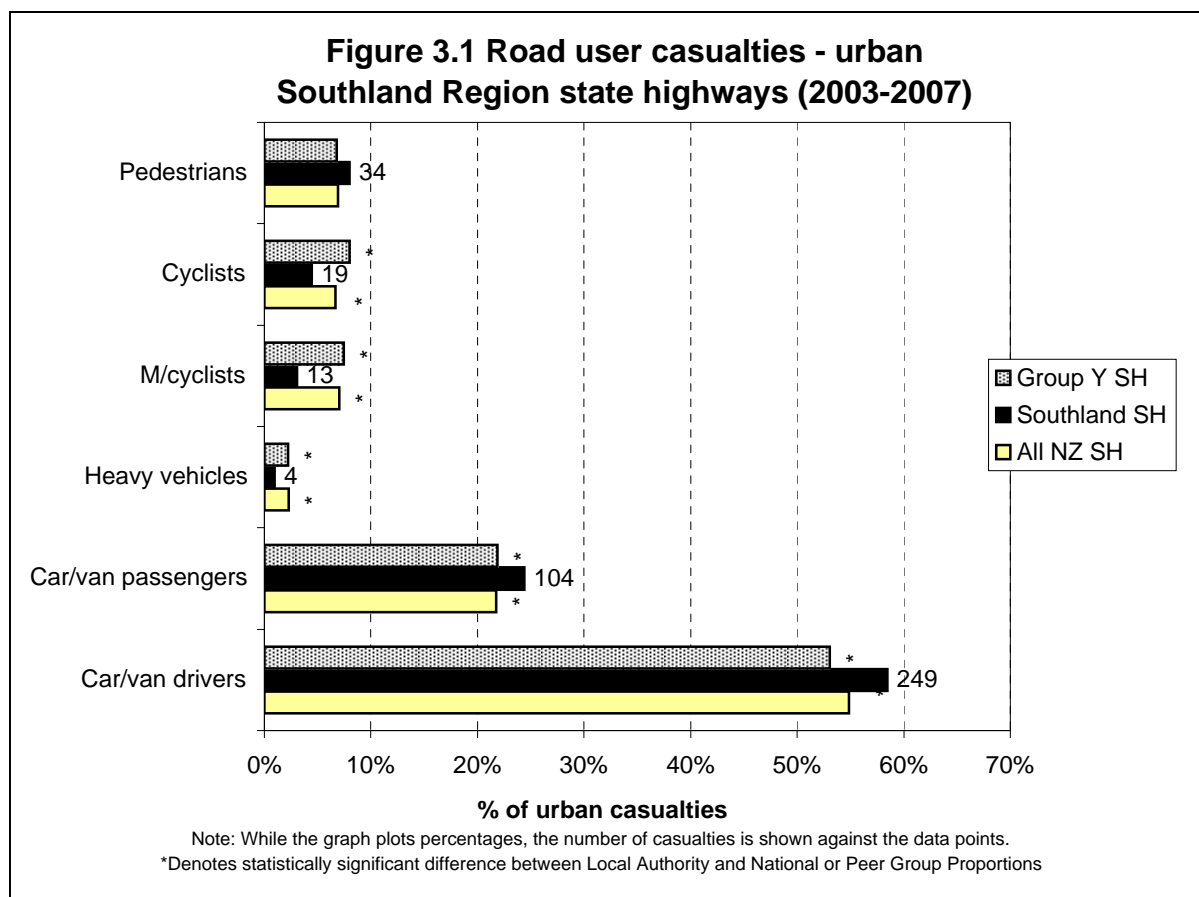
**Figure 2.14 Severity ratio - rural  
Southland Region state highways**



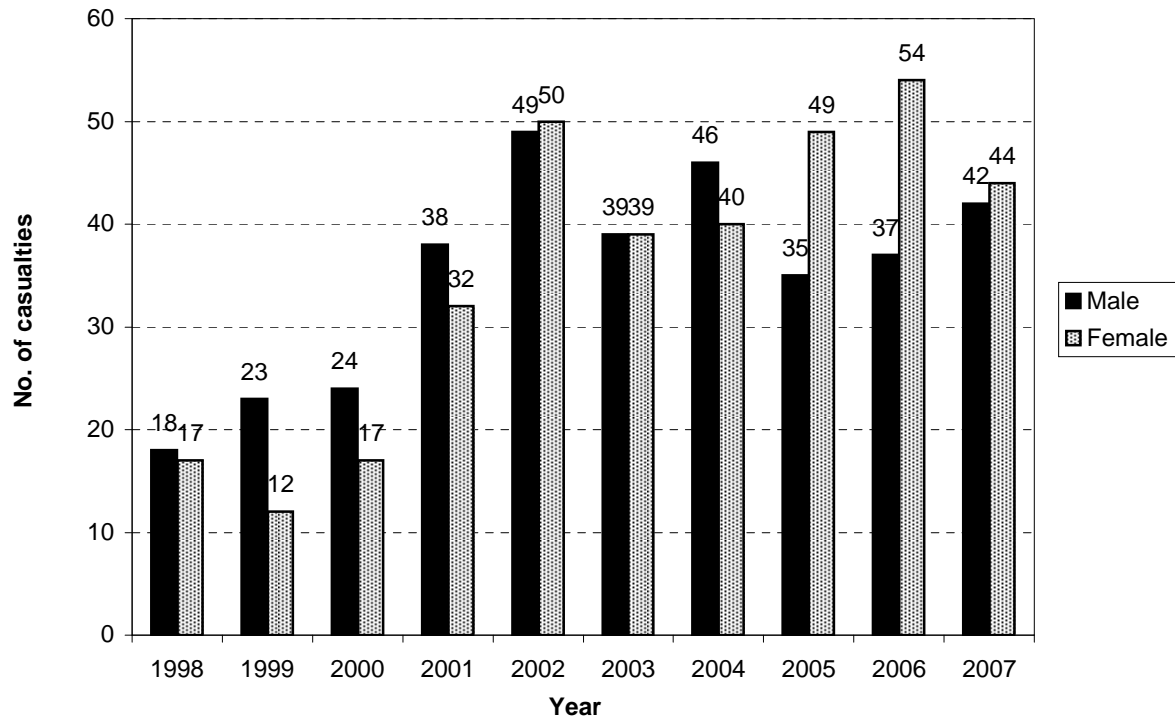


# *Road user statistics*

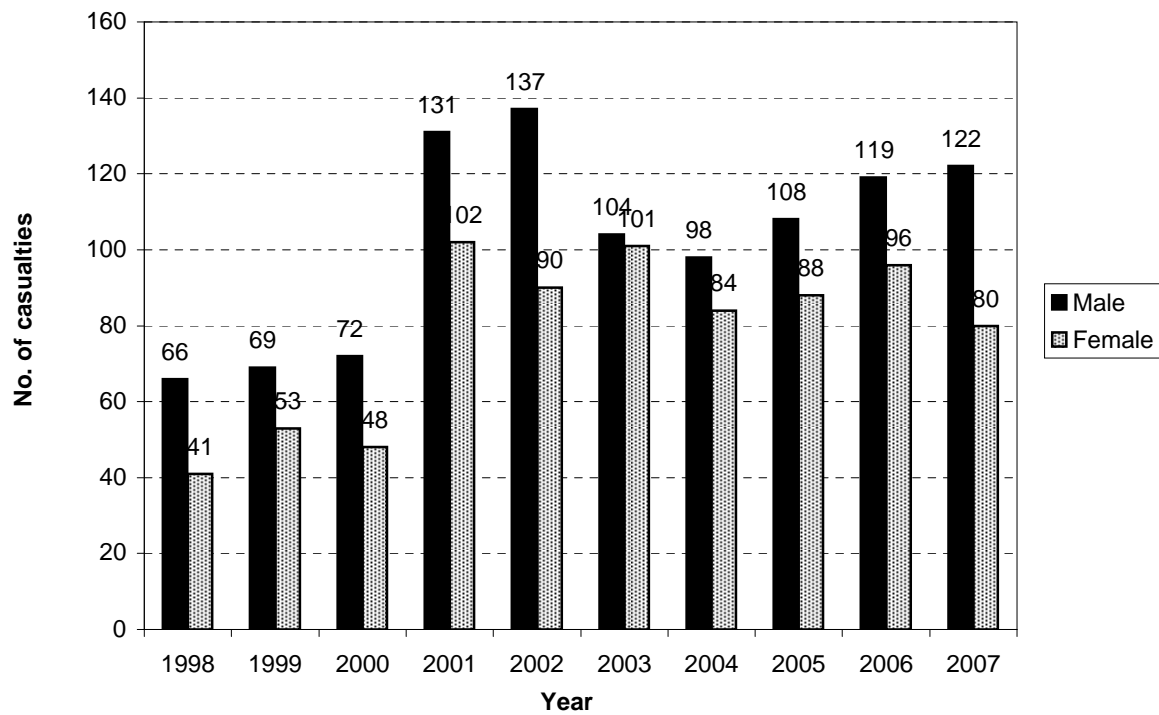




**Figure 3.3 Male/female casualties - urban  
Southland Region state highways**



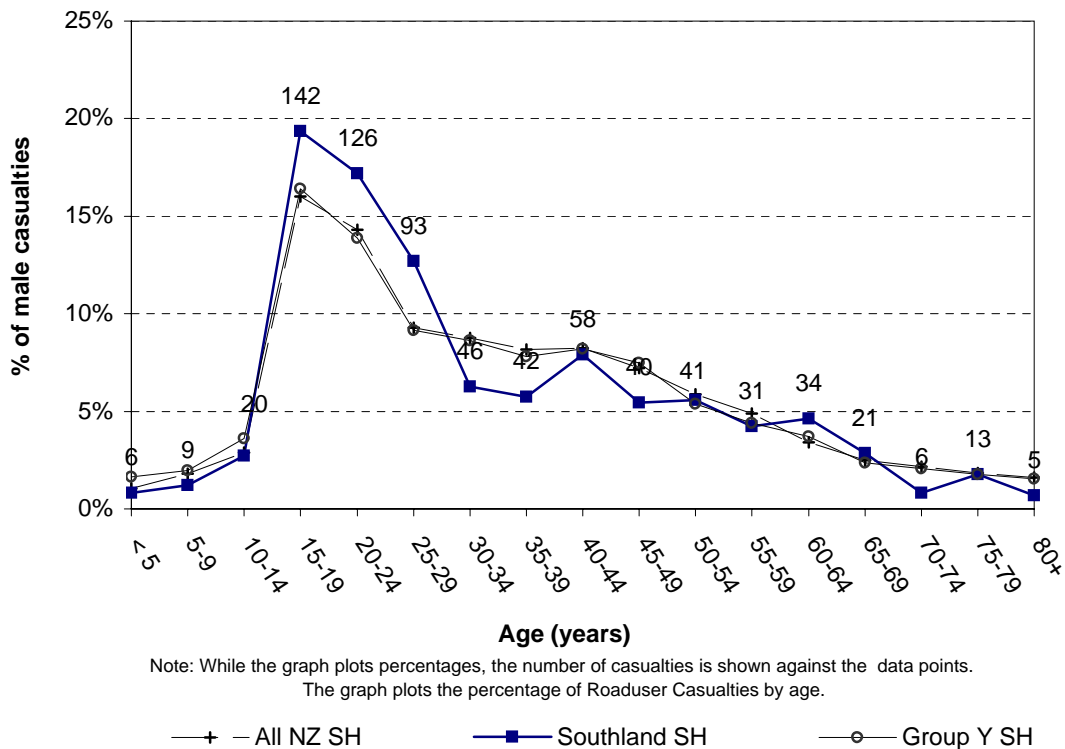
**Figure 3.4 Male/female casualties - rural  
Southland Region state highways**



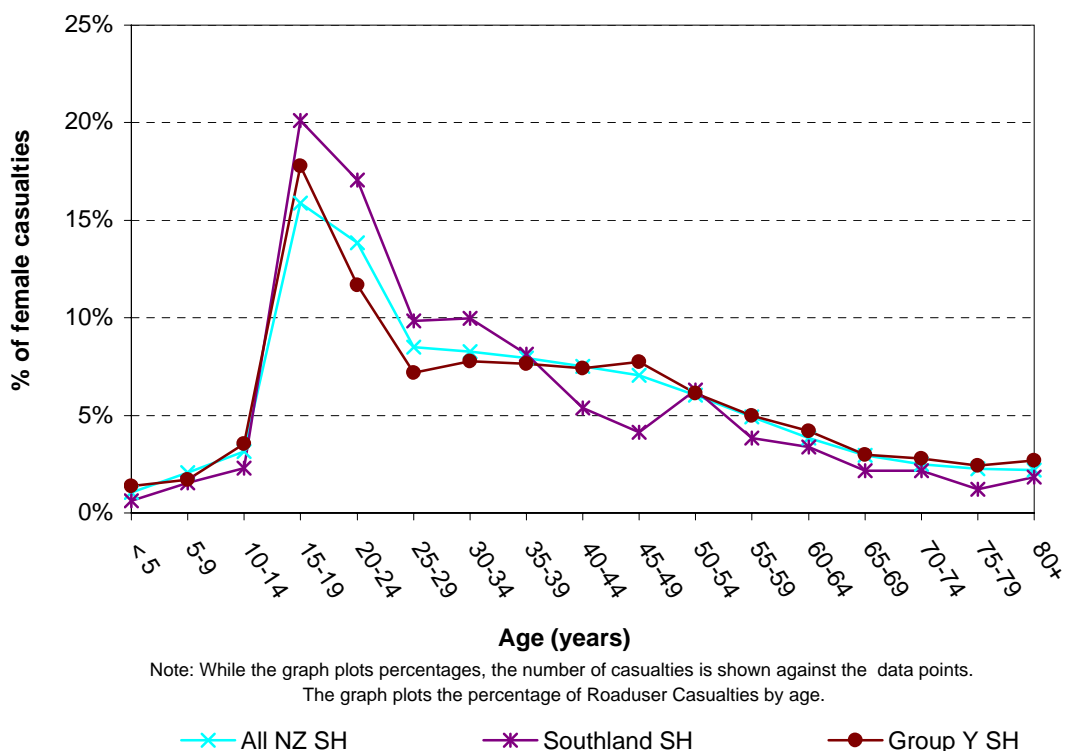




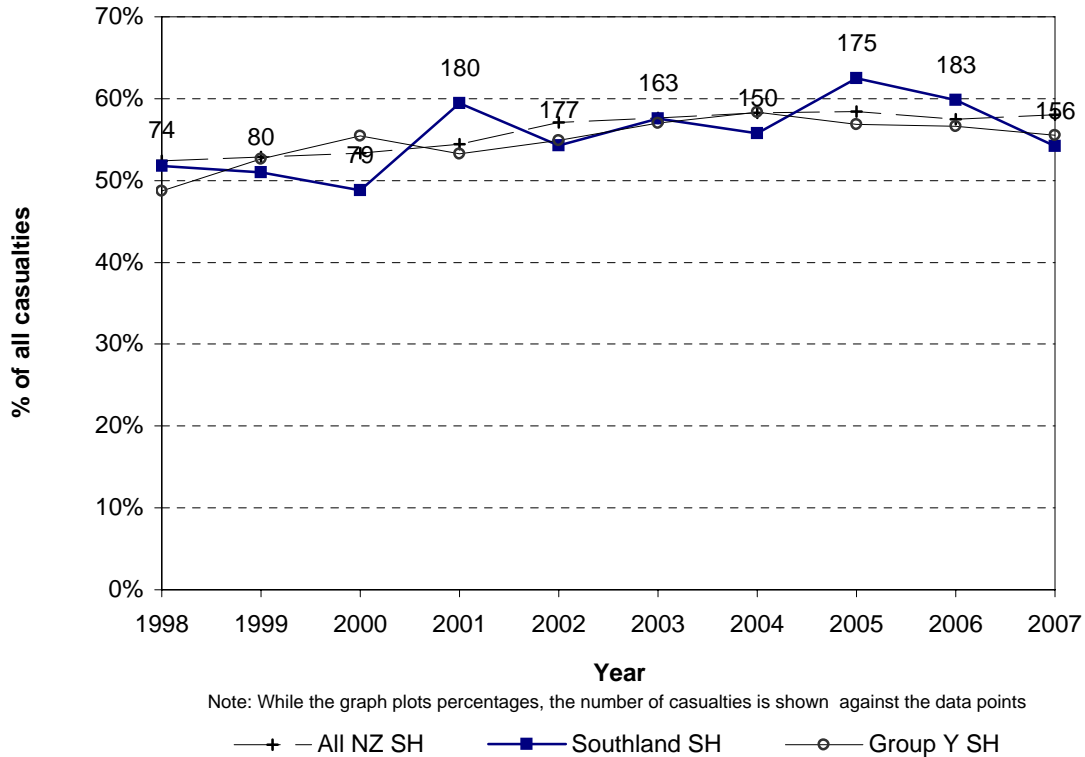
**Figure 3.5 Male casualties by age  
Southland Region state highways (2003-2007)**



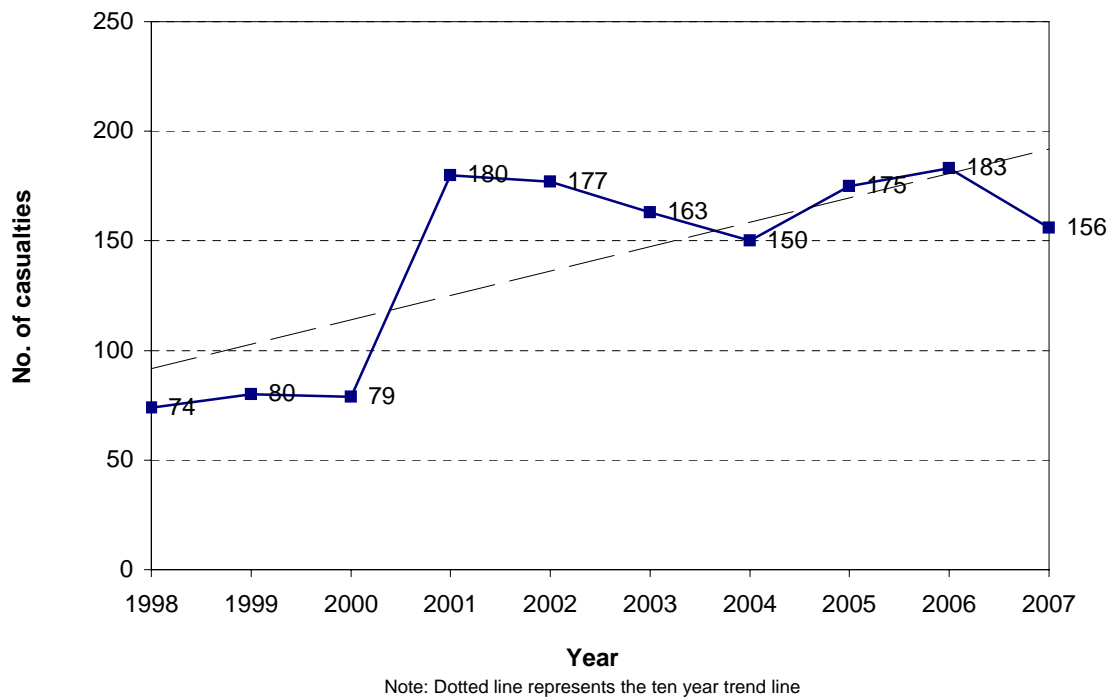
**Figure 3.6 Female casualties by age  
Southland Region state highways (2003-2007)**



**Figure 3.7 Car/van driver casualties  
Southland Region state highways**

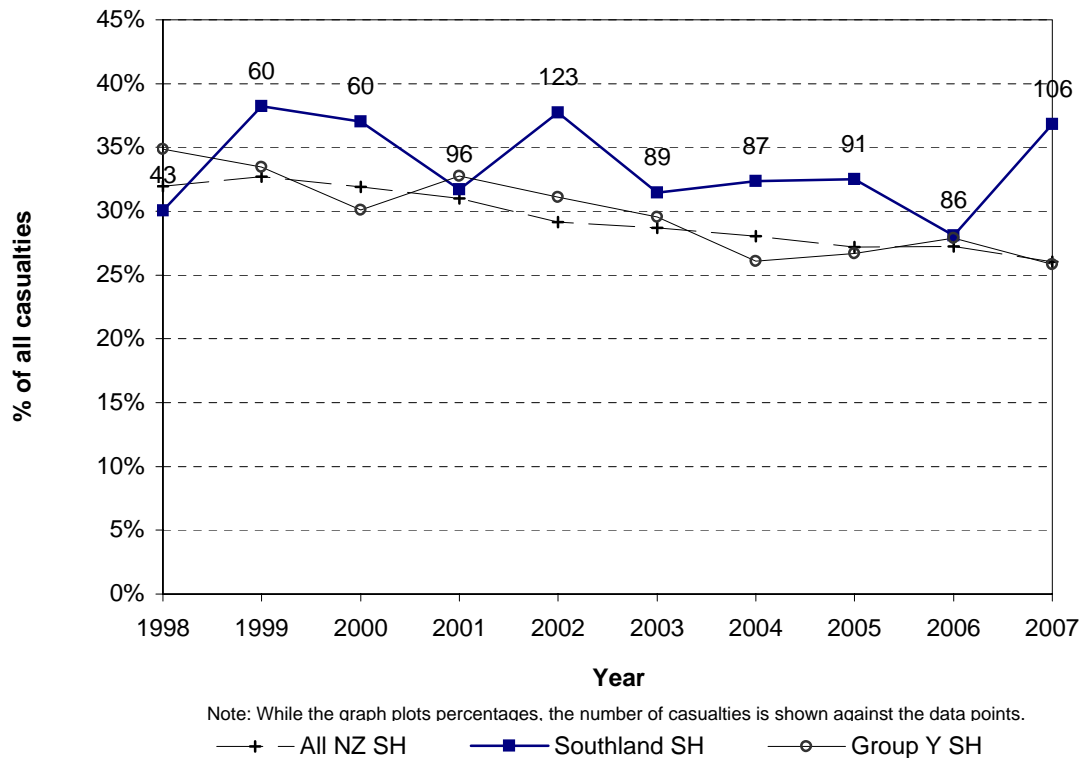


**Figure 3.8 Car/van driver casualties  
Southland Region state highways**

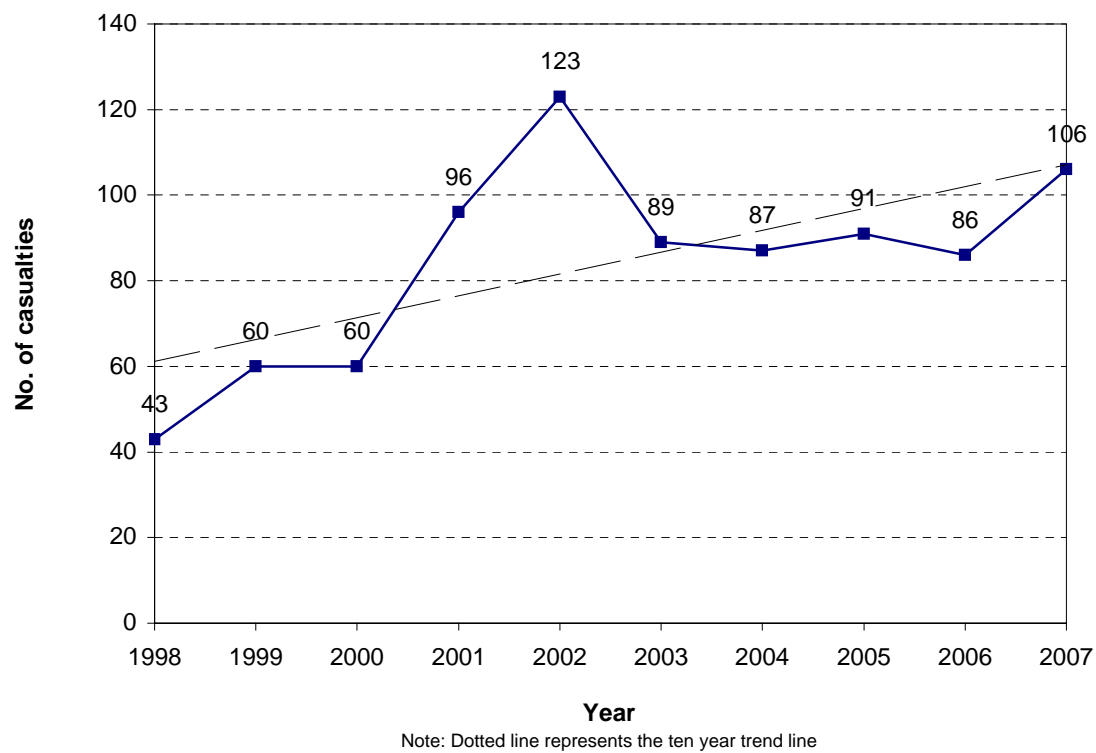




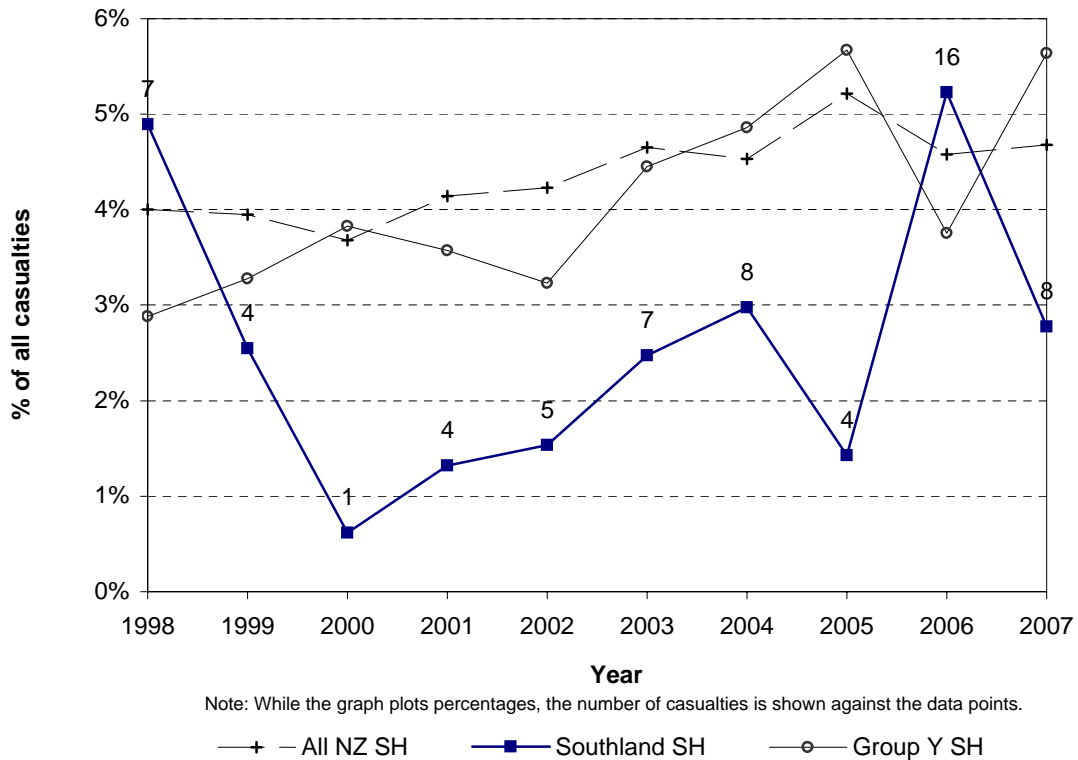
**Figure 3.9 Car/van passenger casualties  
Southland Region state highways**



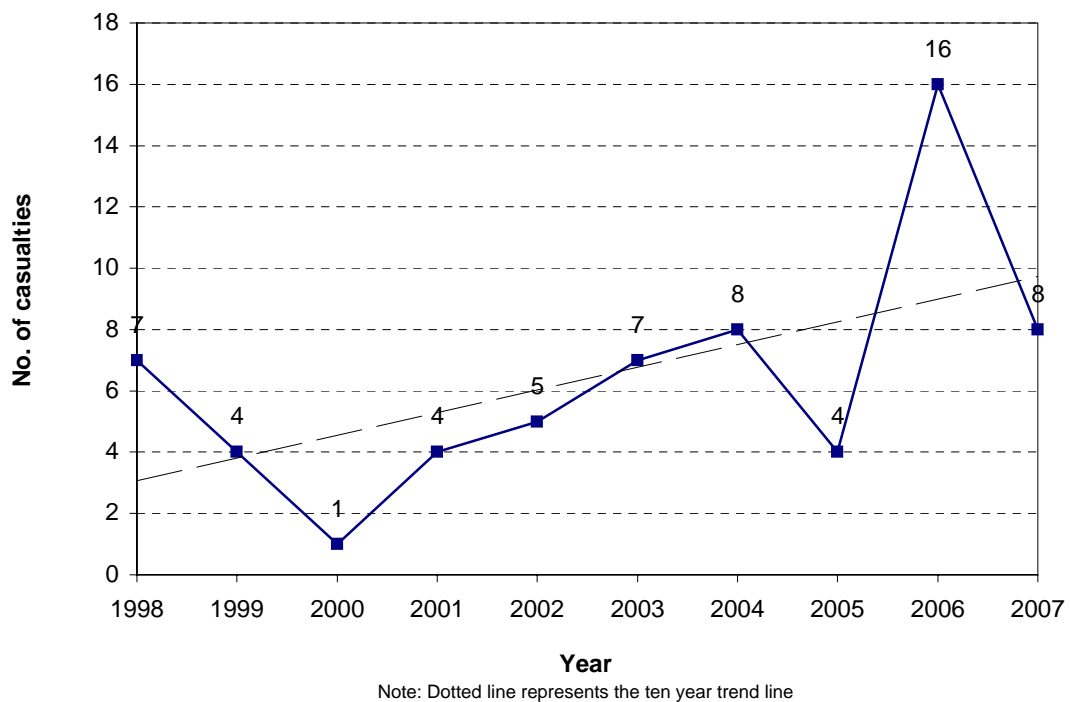
**Figure 3.10 Car/van passenger casualties  
Southland Region state highways**



**Figure 3.11 Heavy vehicle casualties  
Southland Region state highways**

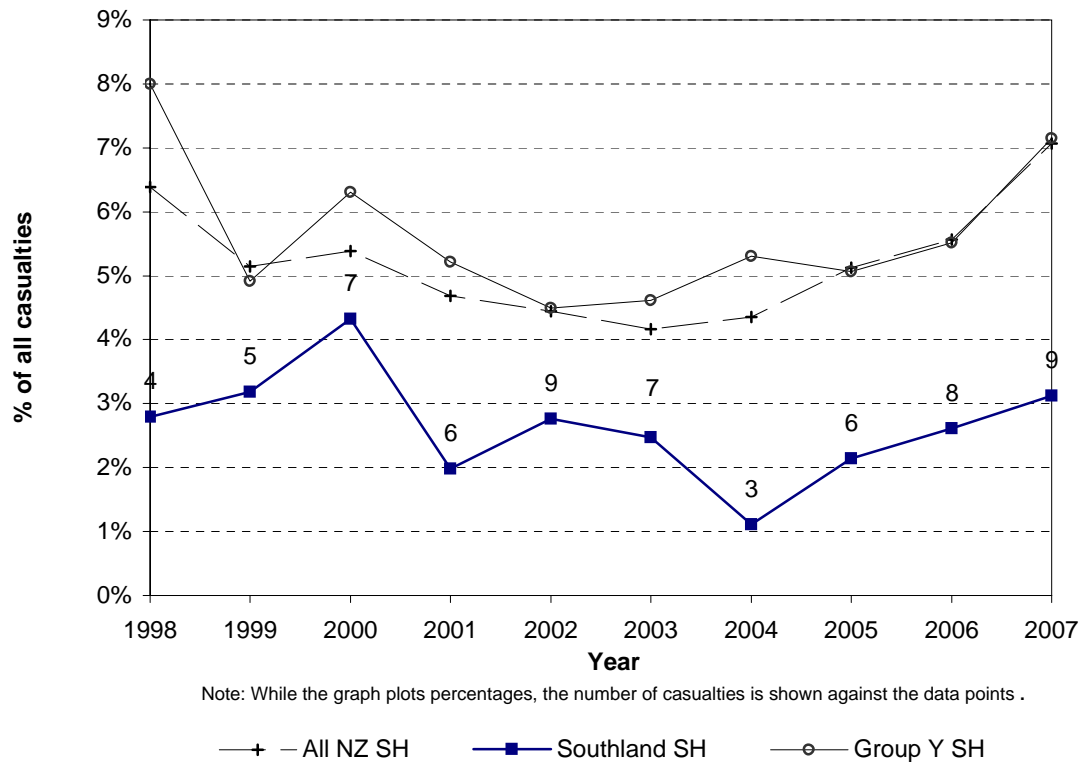


**Figure 3.12 Heavy vehicle casualties  
Southland Region state highways**

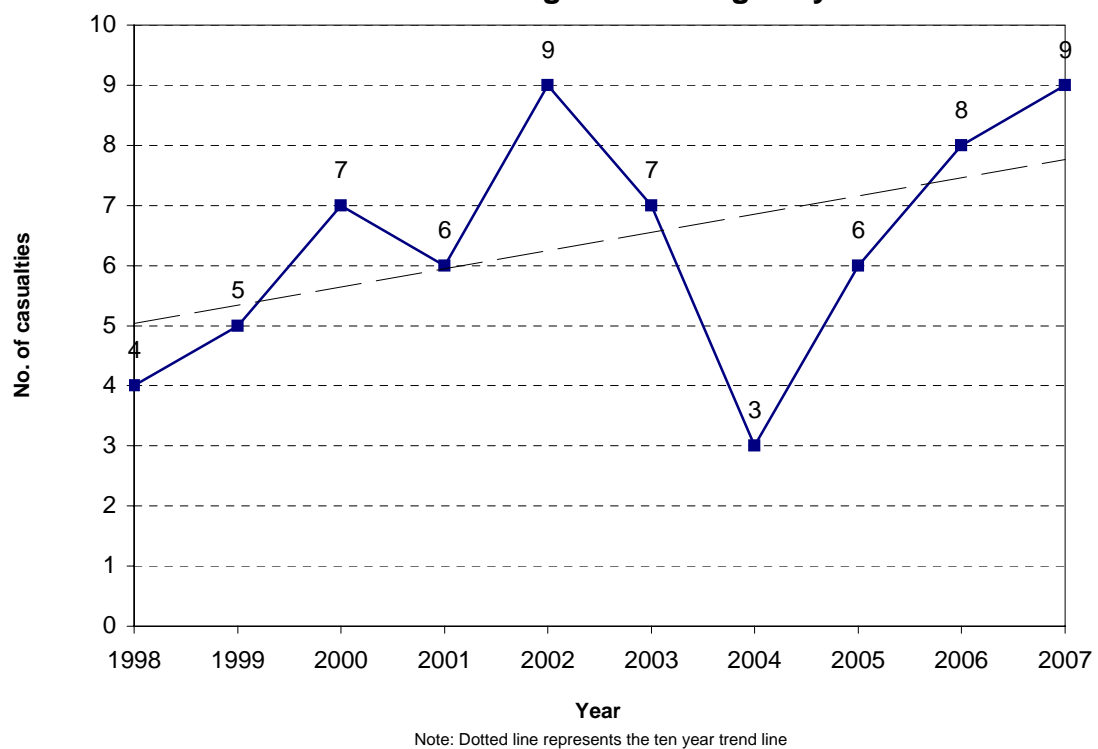




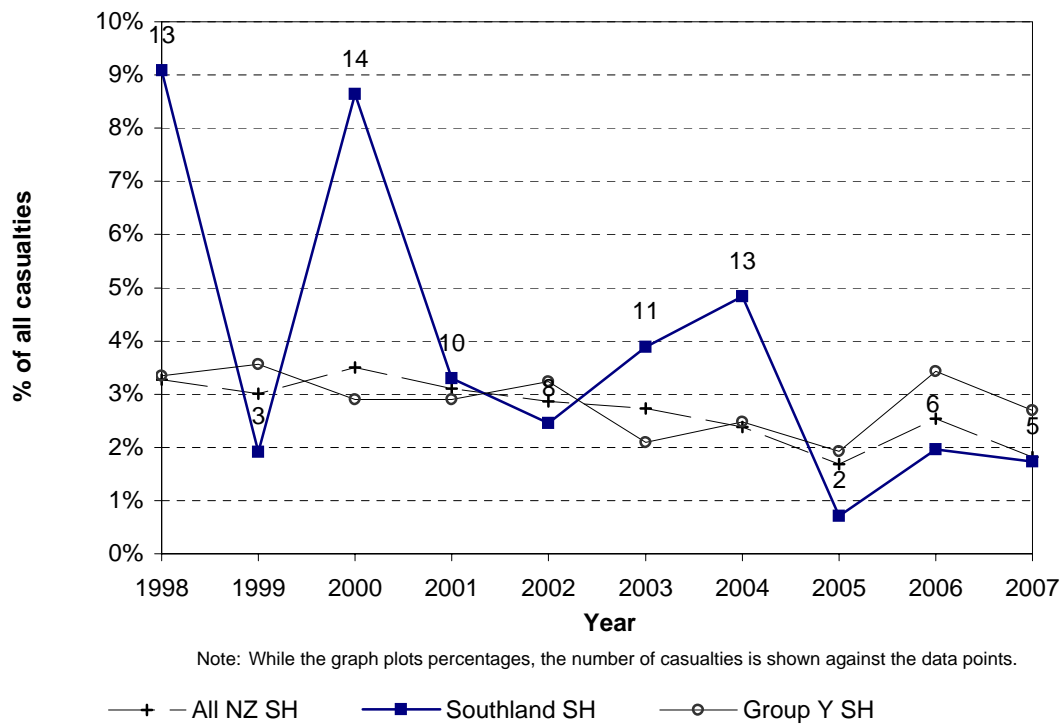
**Figure 3.13 Motorcyclist casualties  
Southland Region state highways**



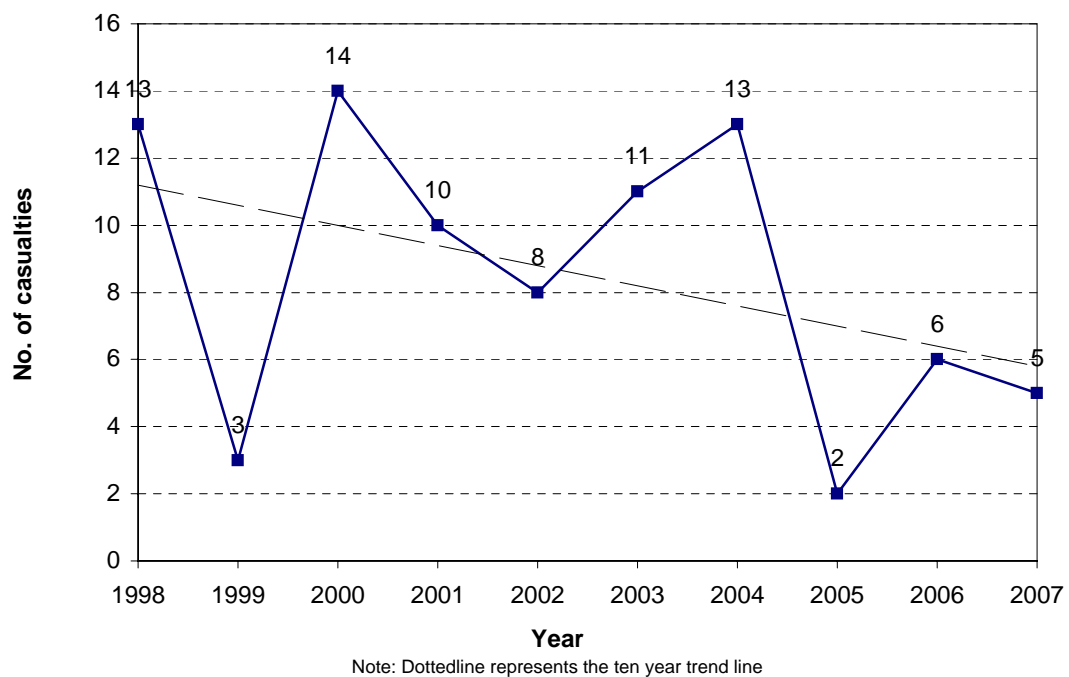
**Figure 3.14 Motorcyclist casualties  
Southland Region state highways**



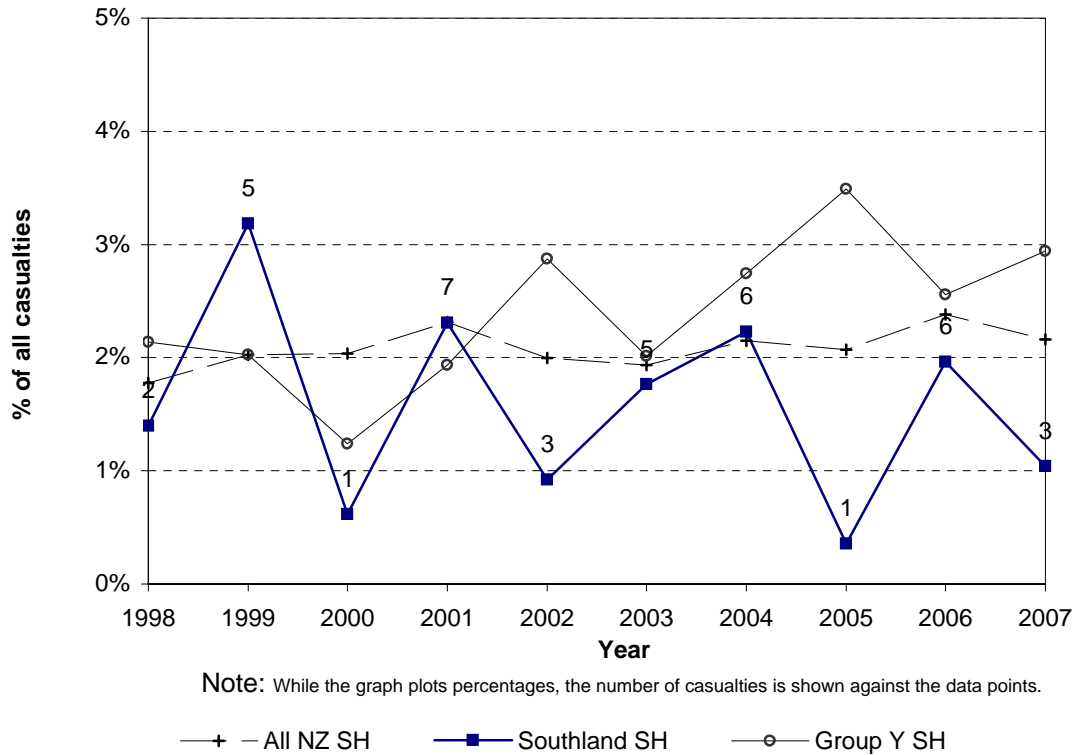
**Figure 3.15 Pedestrian casualties  
Southland Region state highways**



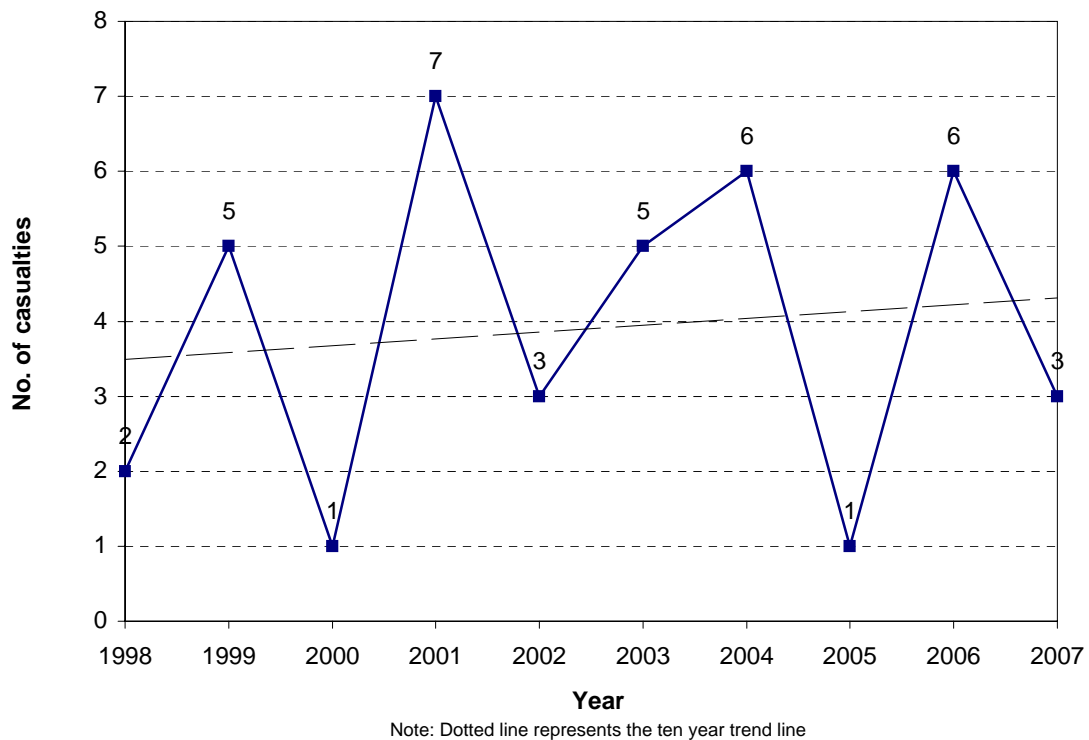
**Figure 3.16 Pedestrian casualties  
Southland Region state highways**



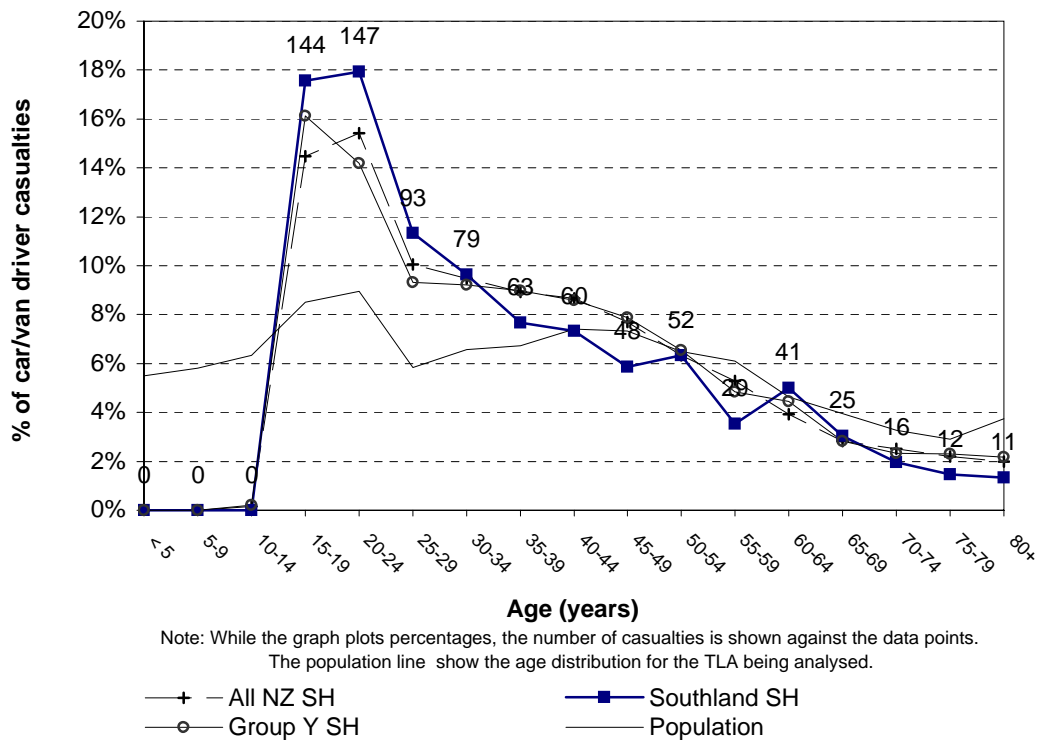
**Figure 3.17 Cyclist casualties  
Southland Region state highways**



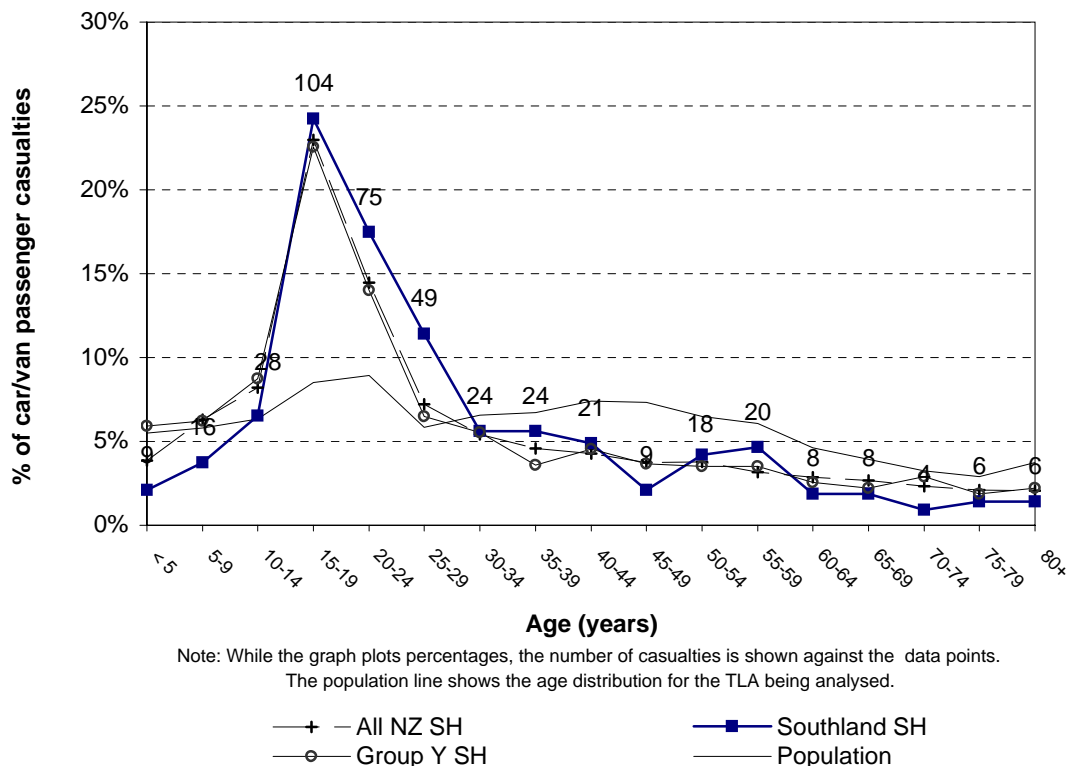
**Figure 3.18 Cyclist casualties  
Southland Region state highways**



**Figure 3.19 Car/van driver casualty age  
Southland Region state highways (2003-2007)**



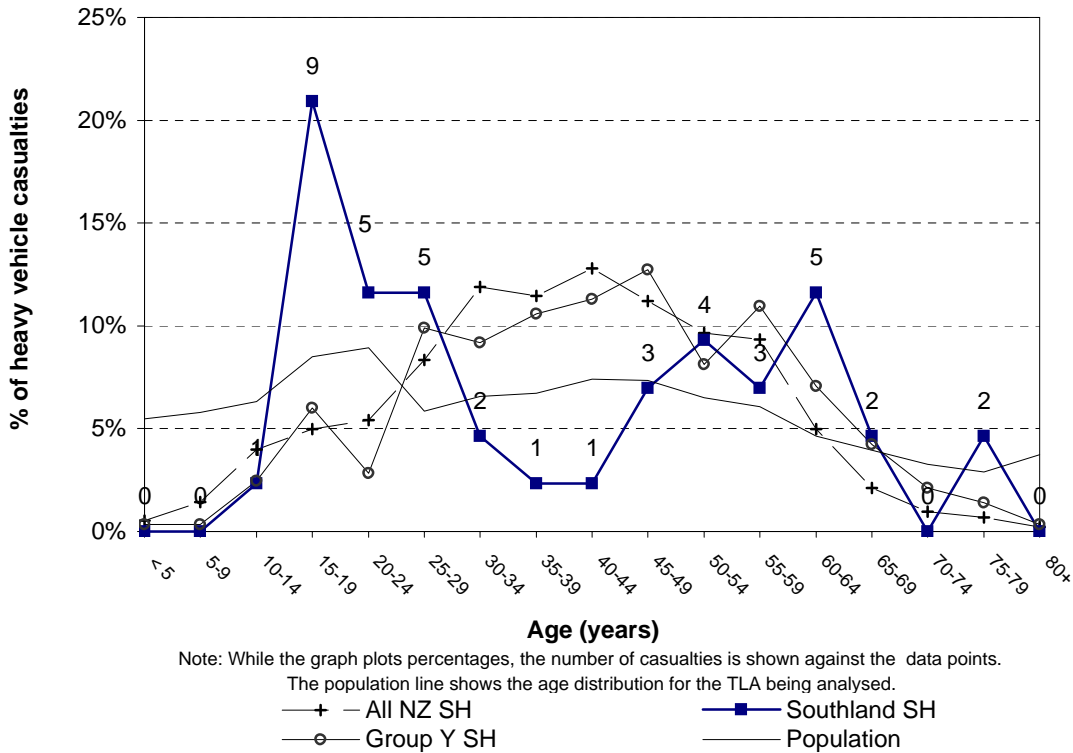
**Figure 3.20 Car/van passenger casualty age  
Southland Region state highways (2003-2007)**



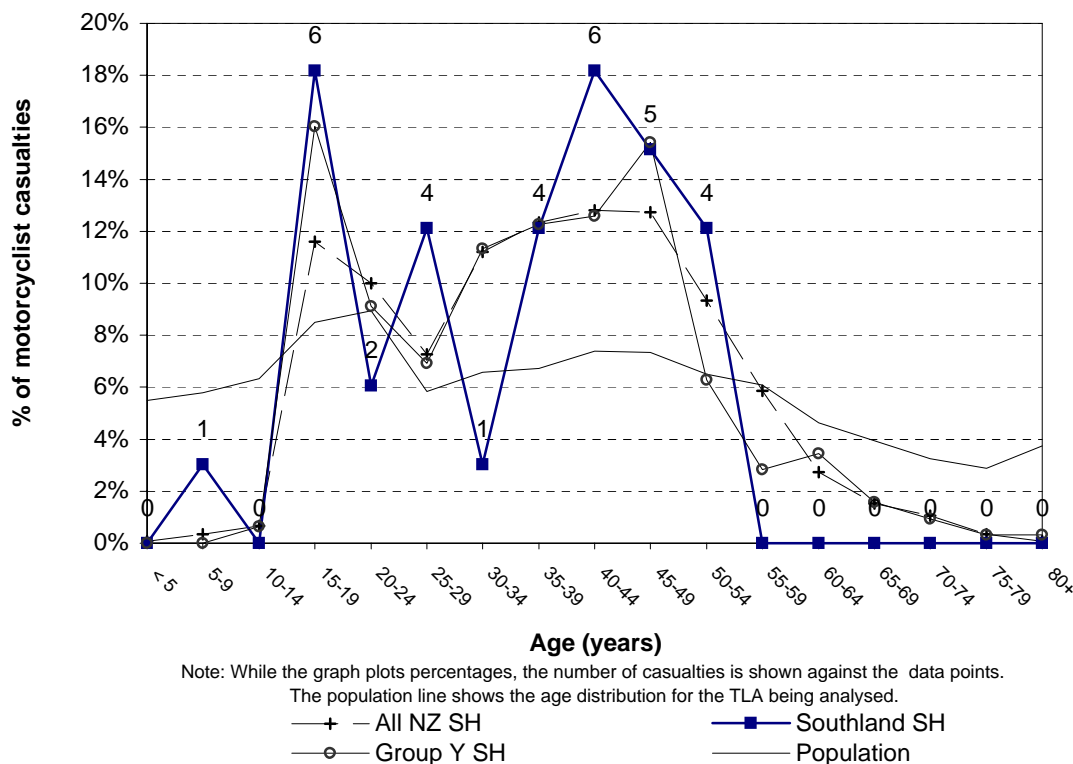




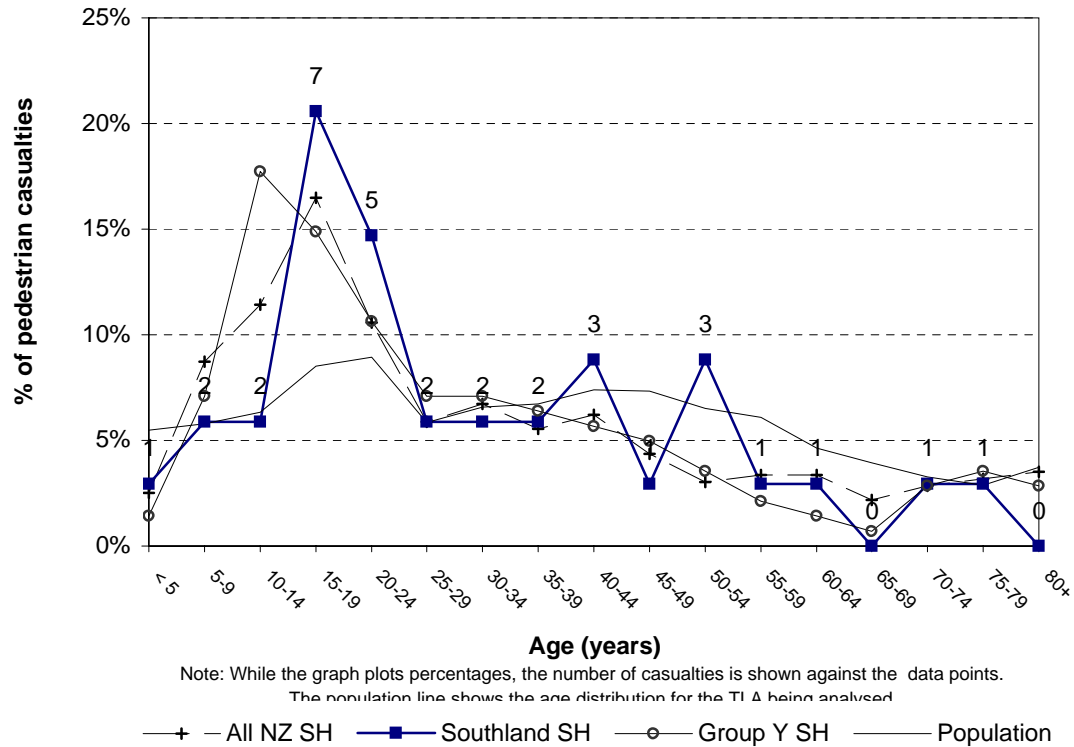
**Figure 3.21 Heavy vehicle casualty age  
Southland Region state highways (2003-2007)**



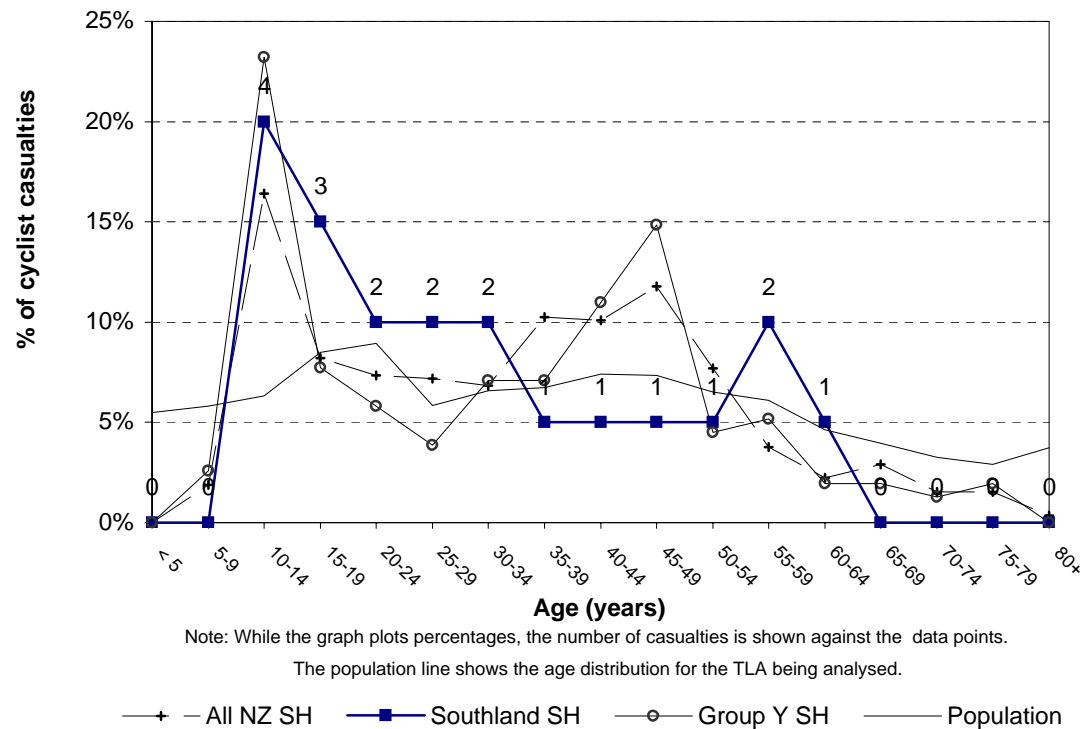
**Figure 3.22 Motorcyclist casualty age  
Southland Region state highways (2003-2007)**



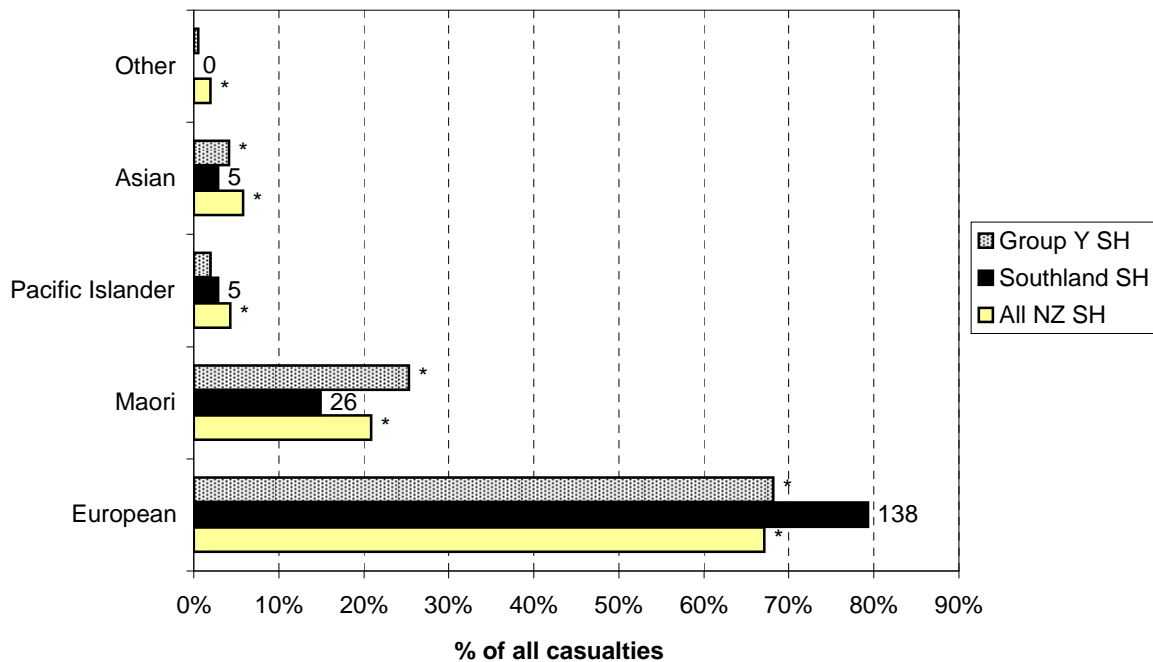
**Figure 3.23 Pedestrian casualty age  
Southland Region state highways (2003-2007)**



**Figure 3.24 Cyclist casualty age  
Southland Region state highways (2003-2007)**

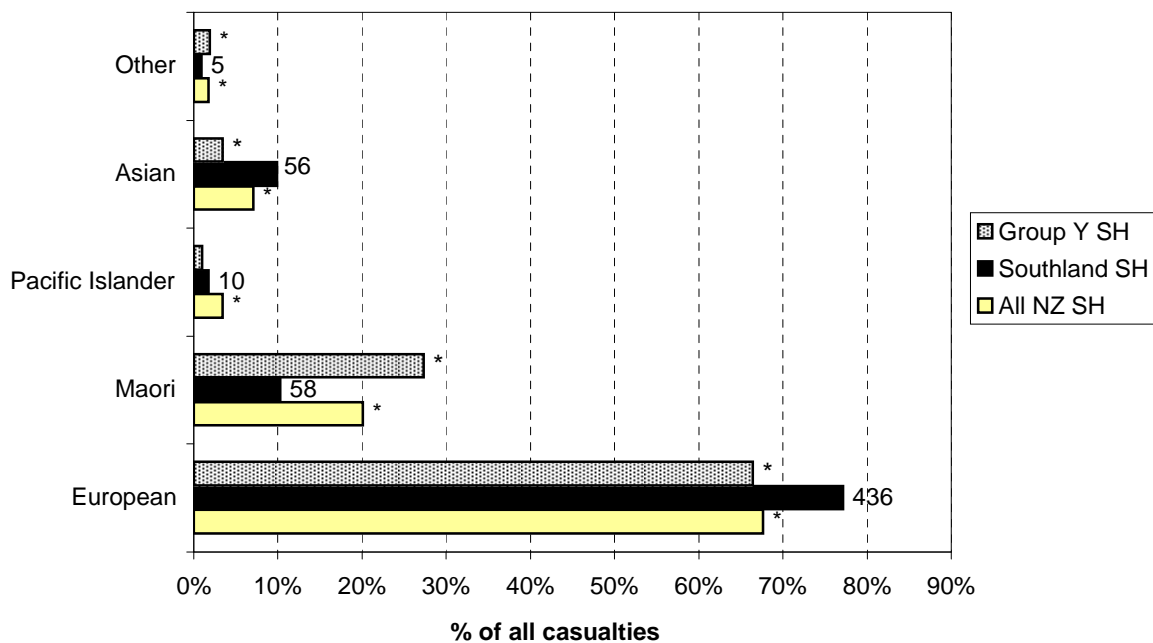


**Figure 3.25 Casualty ethnicity - urban  
Southland Region state highways (2003-2007)**



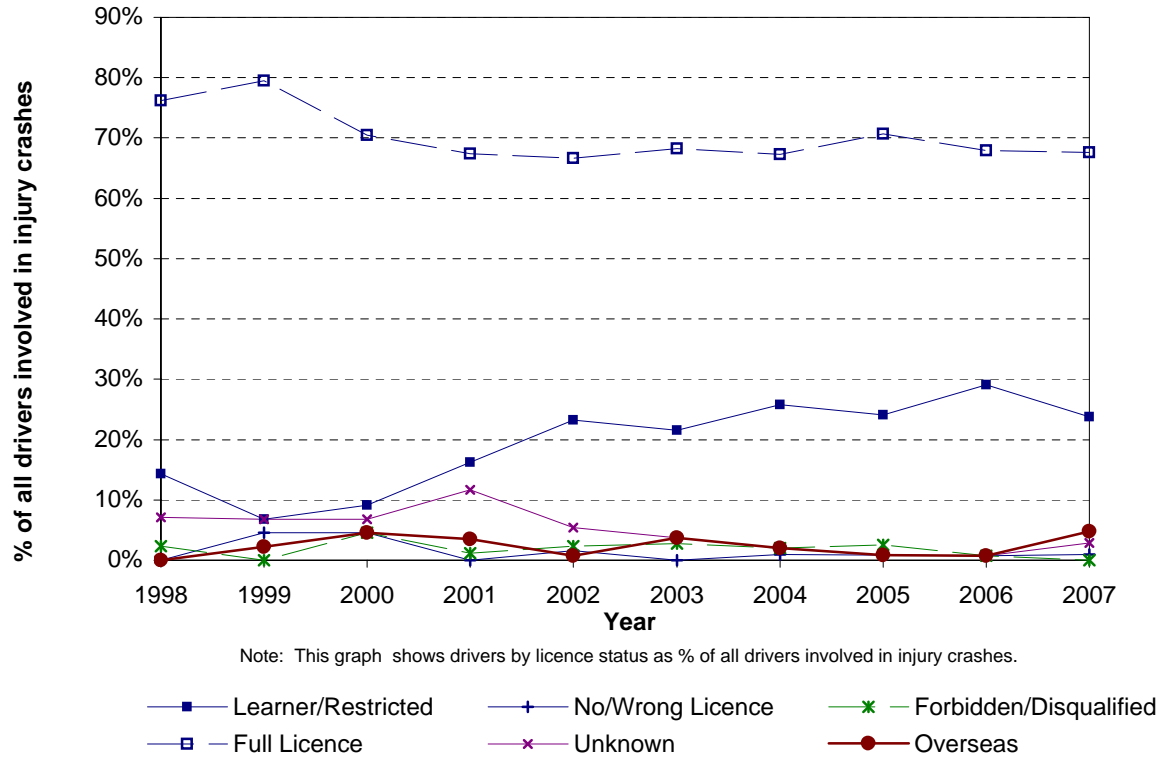
Note: While the graph plots percentages, the number of crashes is shown against the data points.  
\*Denotes statistically significant difference between Local Authority and National or Peer Group Proportions

**Figure 3.26 Casualty ethnicity - rural  
Southland Region state highways (2003-2007)**

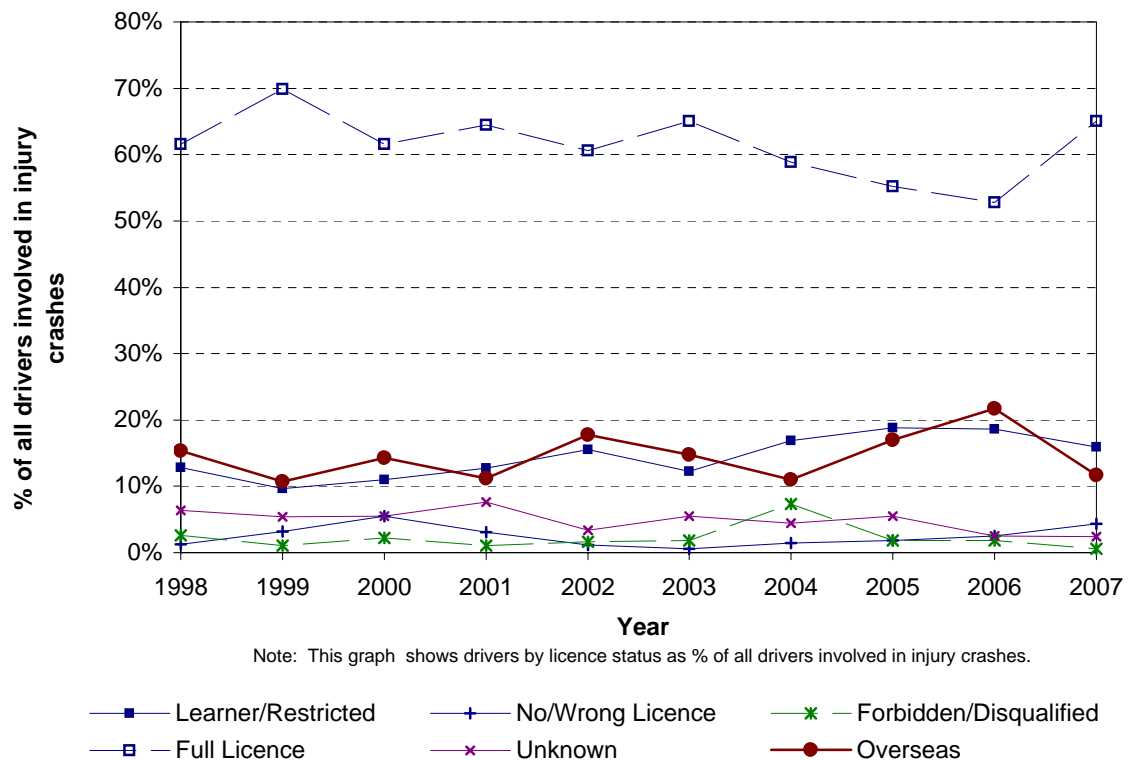


Note: While the graph plots percentages, the number of crashes is shown against the data points.  
\*Denotes statistically significant difference between Local Authority and National or Peer Group Proportions

**Figure 3.27 Licence status - urban  
Southland Region state highways**



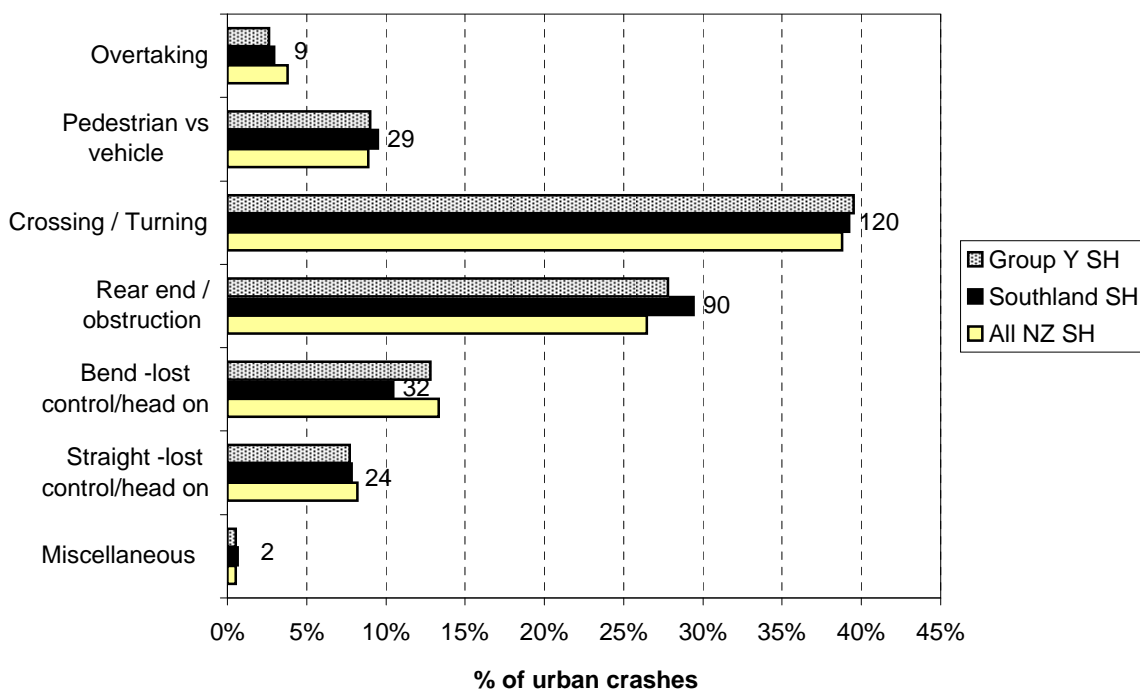
**Figure 3.28 Licence status - rural  
Southland Region state highways**



# *Crash type statistics*

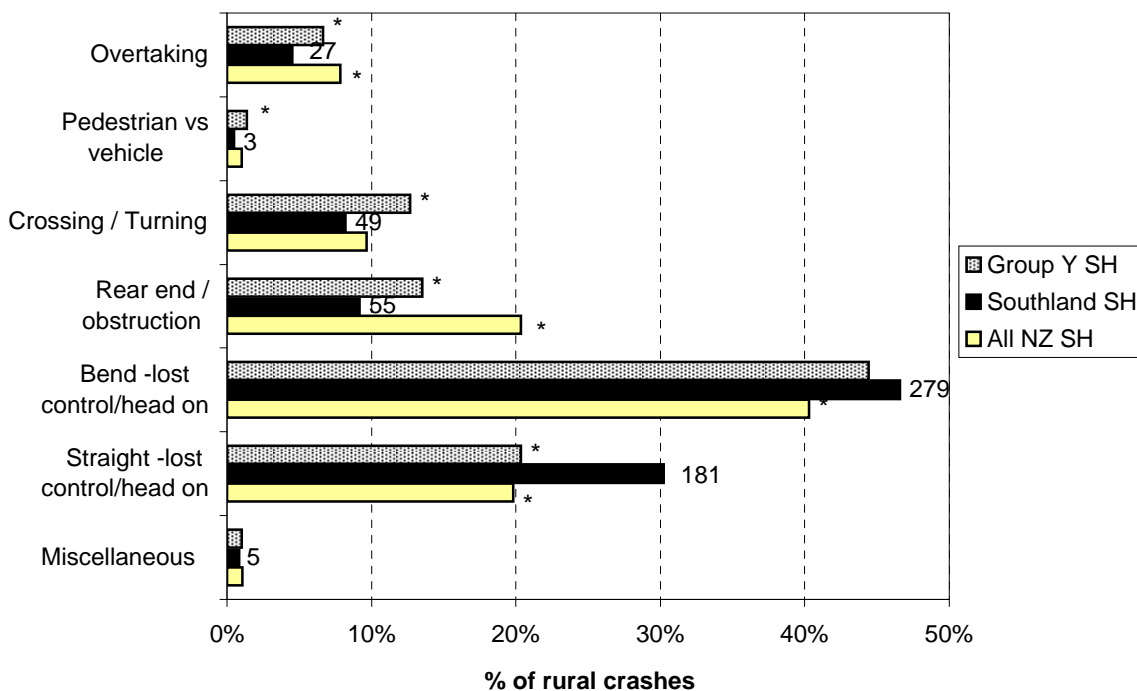


**Figure 4.1 Crash movement type - urban  
Southland Region state highways (2003-2007)**



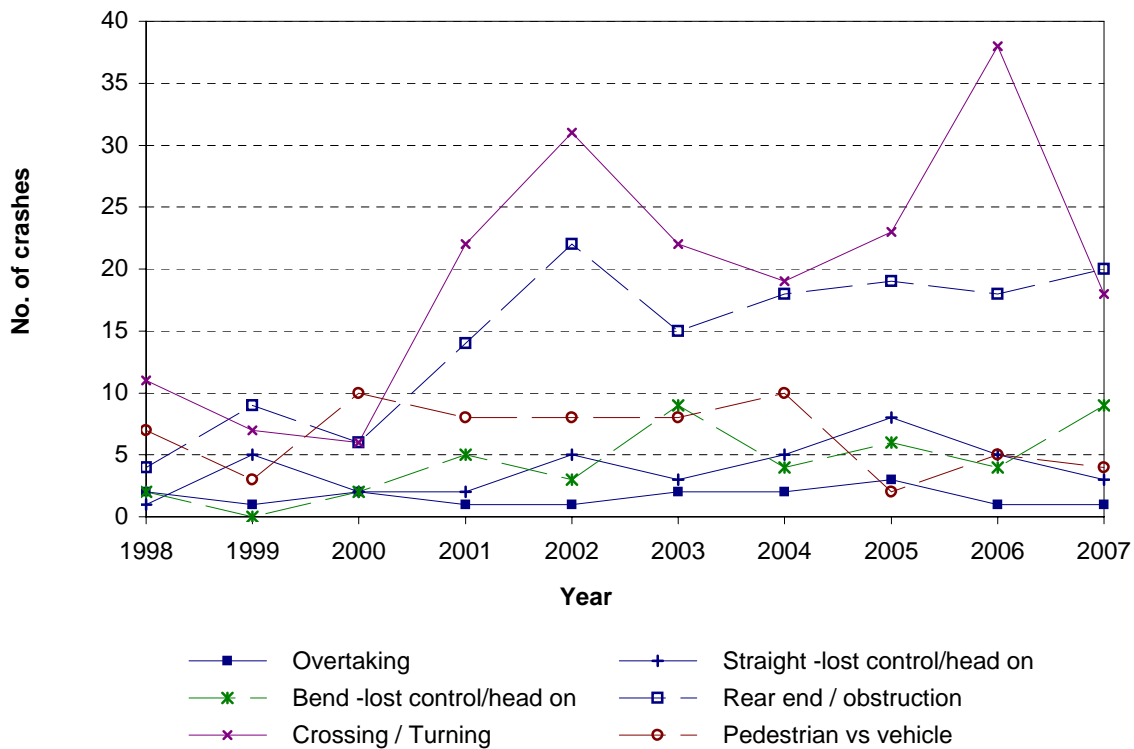
Note: While the graph plots percentages, the number of crashes is shown against the data points.  
\*Denotes statistically significant difference between Local Authority and National or Peer Group Proportions

**Figure 4.2 Crash movement type - rural  
Southland Region state highways (2003-2007)**

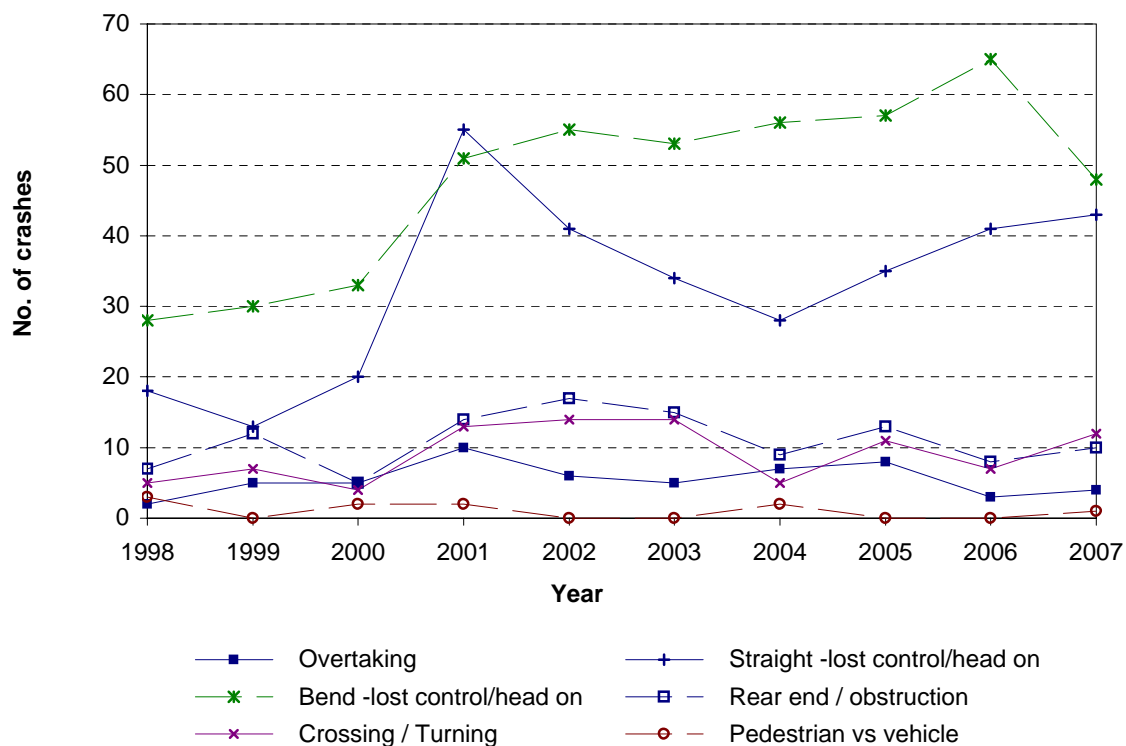


Note: While the graph plots percentages, the number of crashes is shown against the data points.  
\*Denotes statistically significant difference between Local Authority and National or Peer Group Proportions

**Figure 4.3 Crash movement type - trends  
Southland Region - urban state highways**

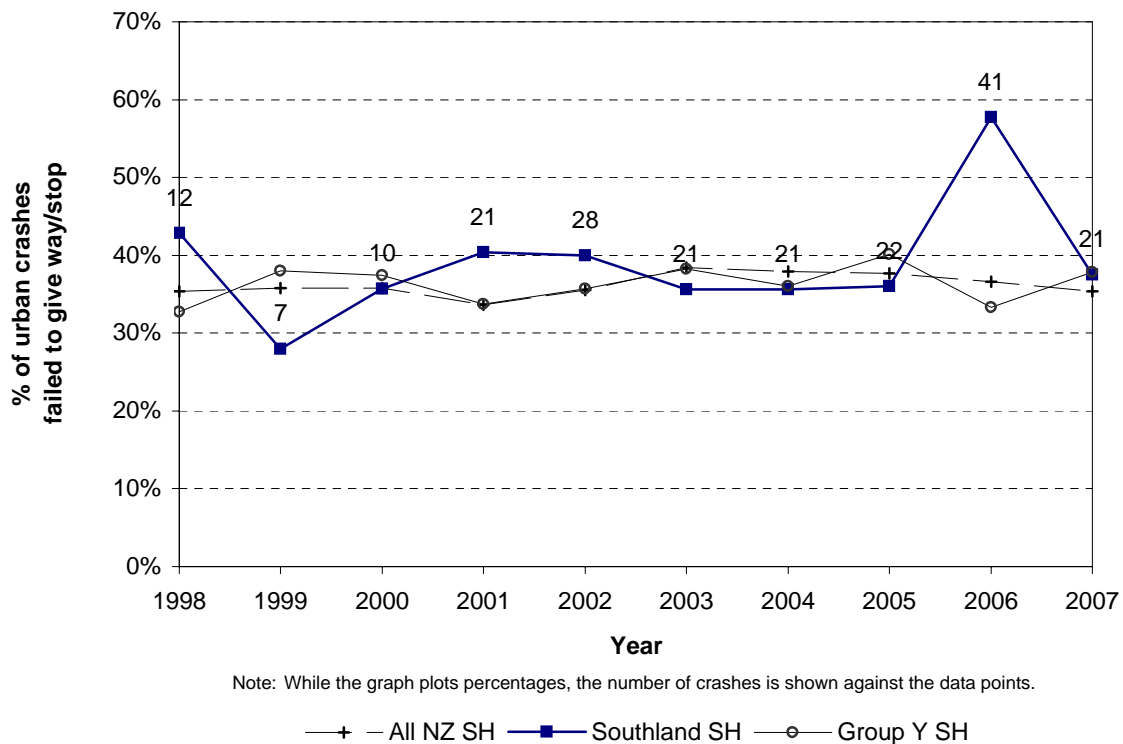


**Figure 4.4 Crash movement type - trends  
Southland Region - rural state highways**

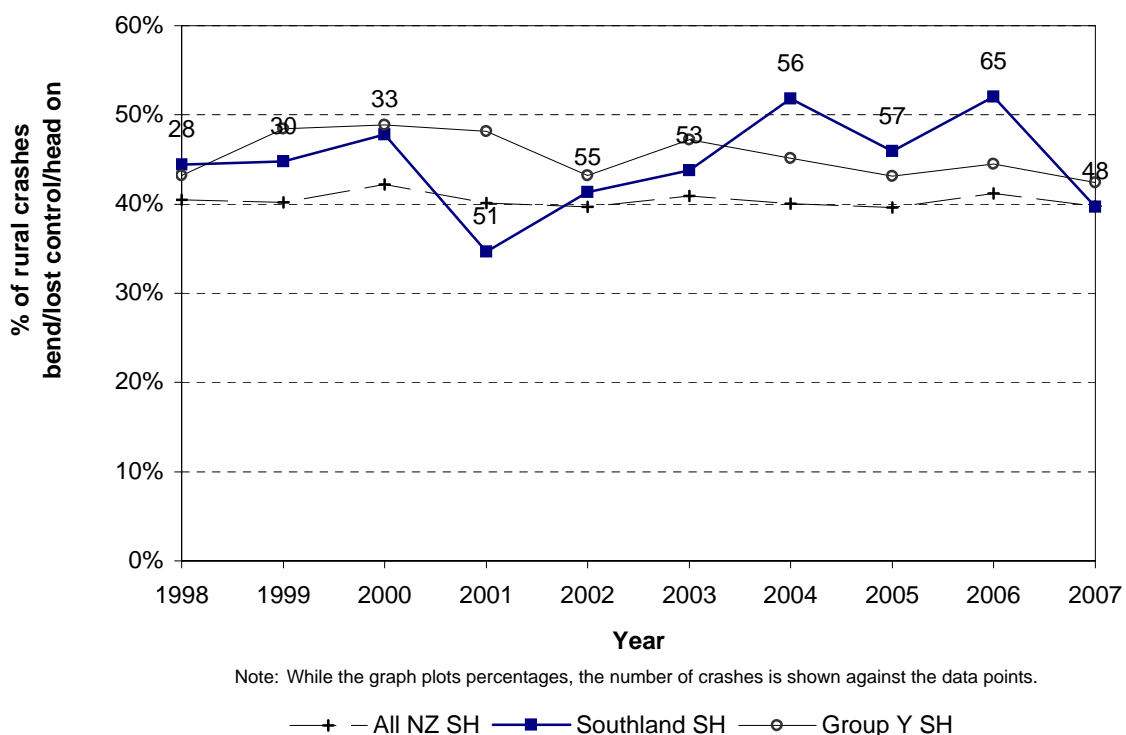




**Figure 4.5 Failed to give way / stop  
Southland Region - urban state highways**



**Figure 4.6 Bend - lost control / head - on  
Southland Region - rural state highways**

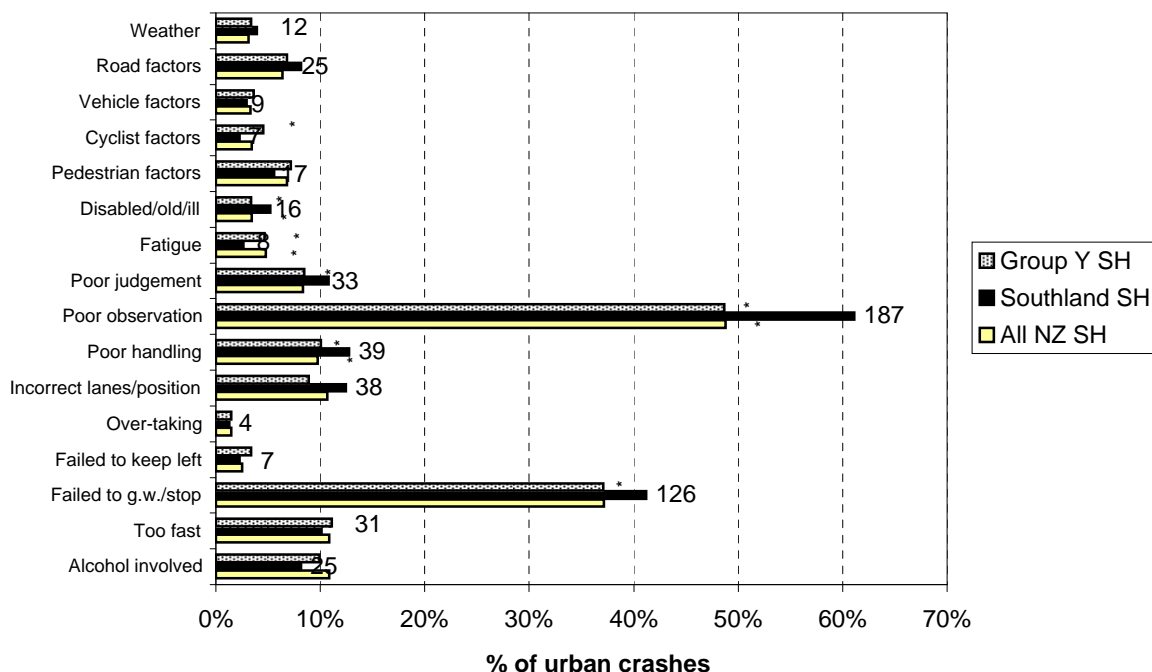




# *Crash factor statistics*

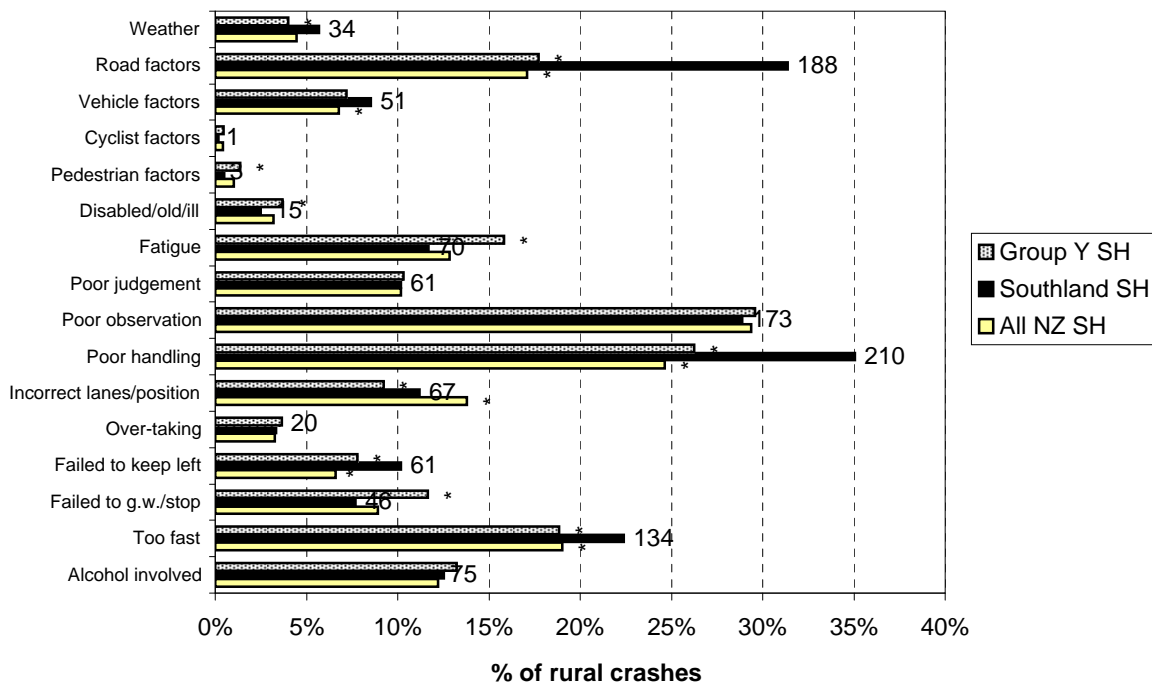


**Figure 5.1 Contributing factors - urban  
Southland Region state highways (2003-2007)**



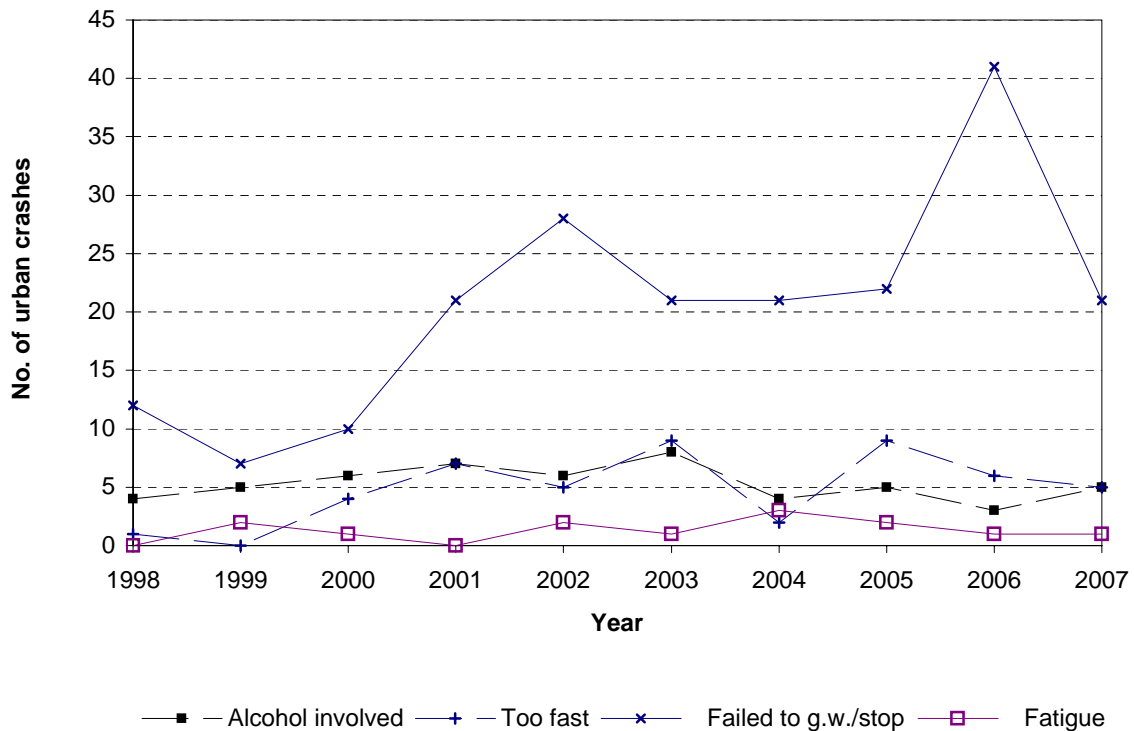
Note: While the graph plots percentages, the number of crashes is shown against the data points.  
\*Denotes statistically significant difference between Local Authority and National or Peer Group Proportions

**Figure 5.2 Contributing factors - rural  
Southland Region state highways (2003-2007)**

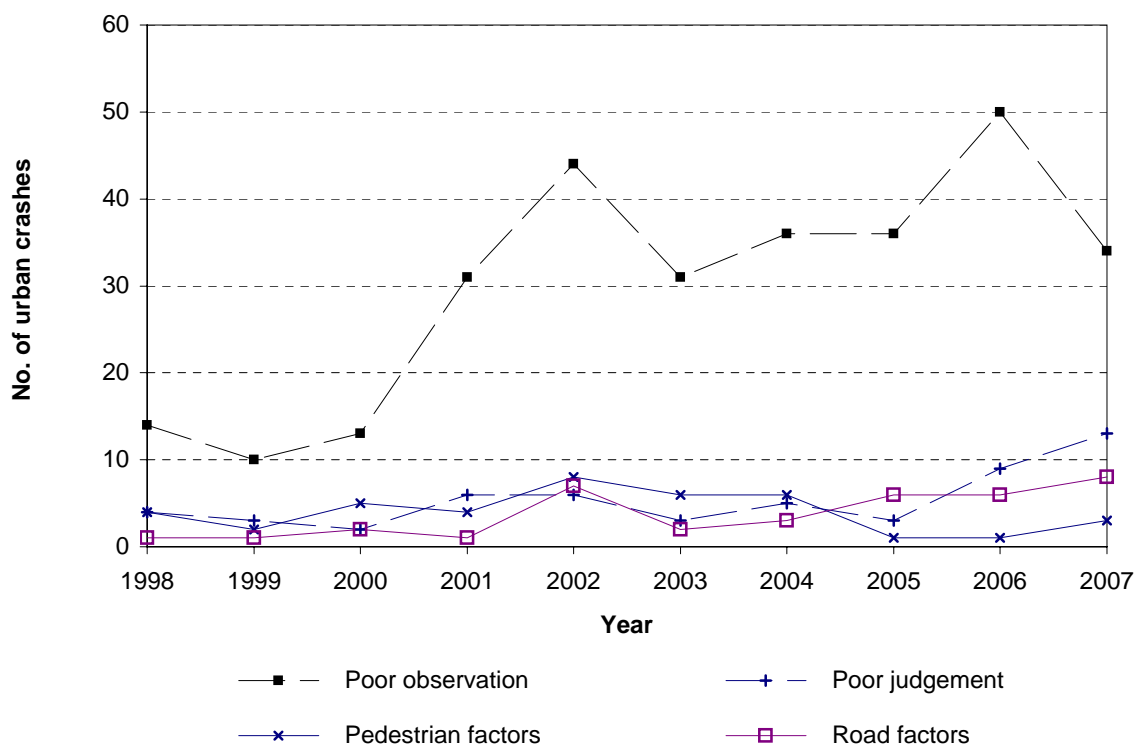


Note: While the graph plots percentages, the number of casualties is shown against the data points.  
\*Denotes statistically significant difference between Local Authority and National or Peer Group Proportions

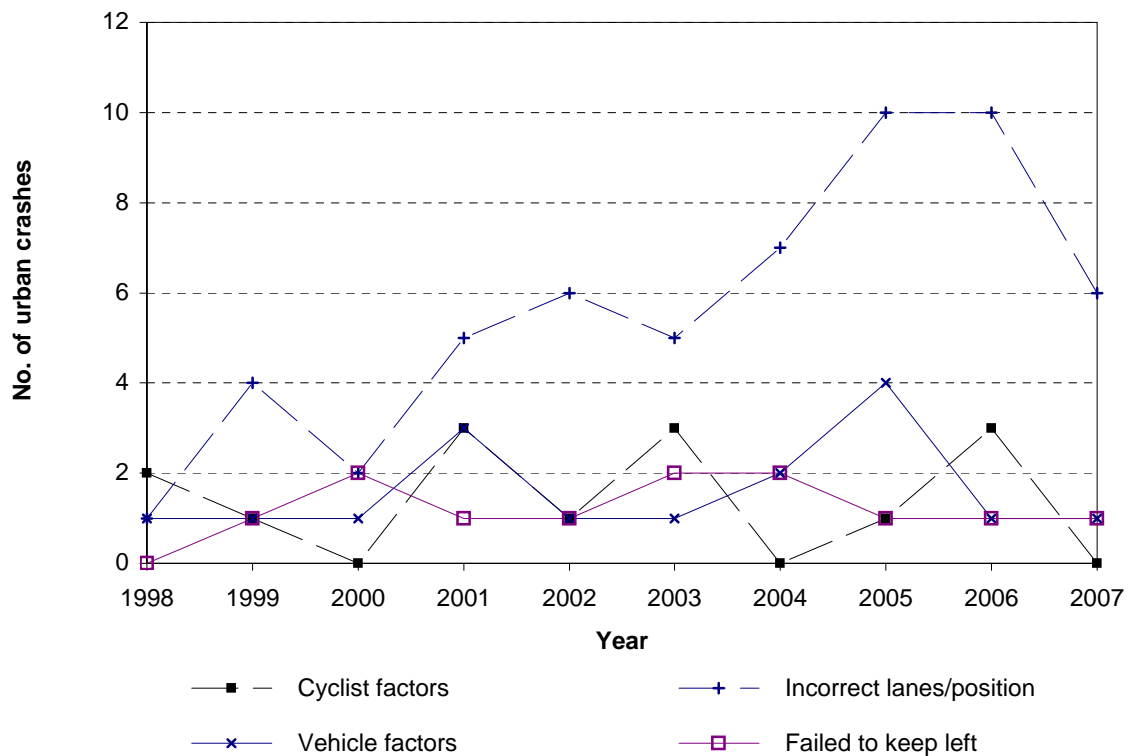
**Figure 5.3 Contributing factor trends  
Southland Region - urban state highways**



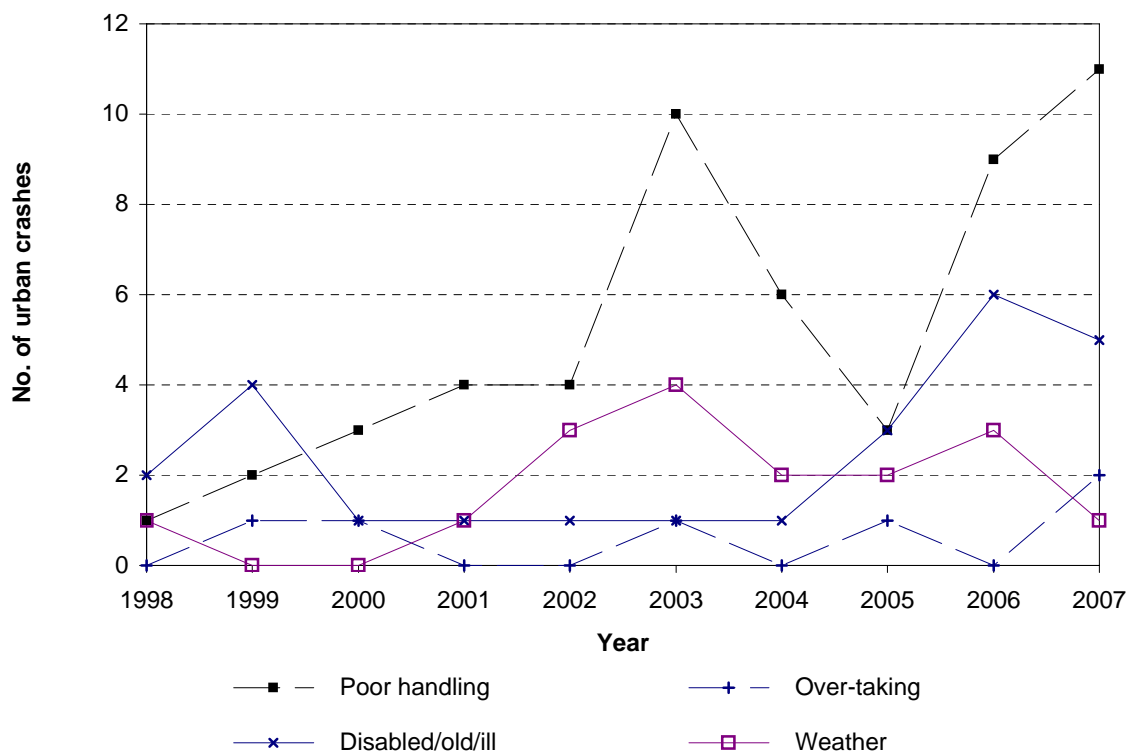
**Figure 5.4 Contributing factor trends  
Southland Region - urban state highways**



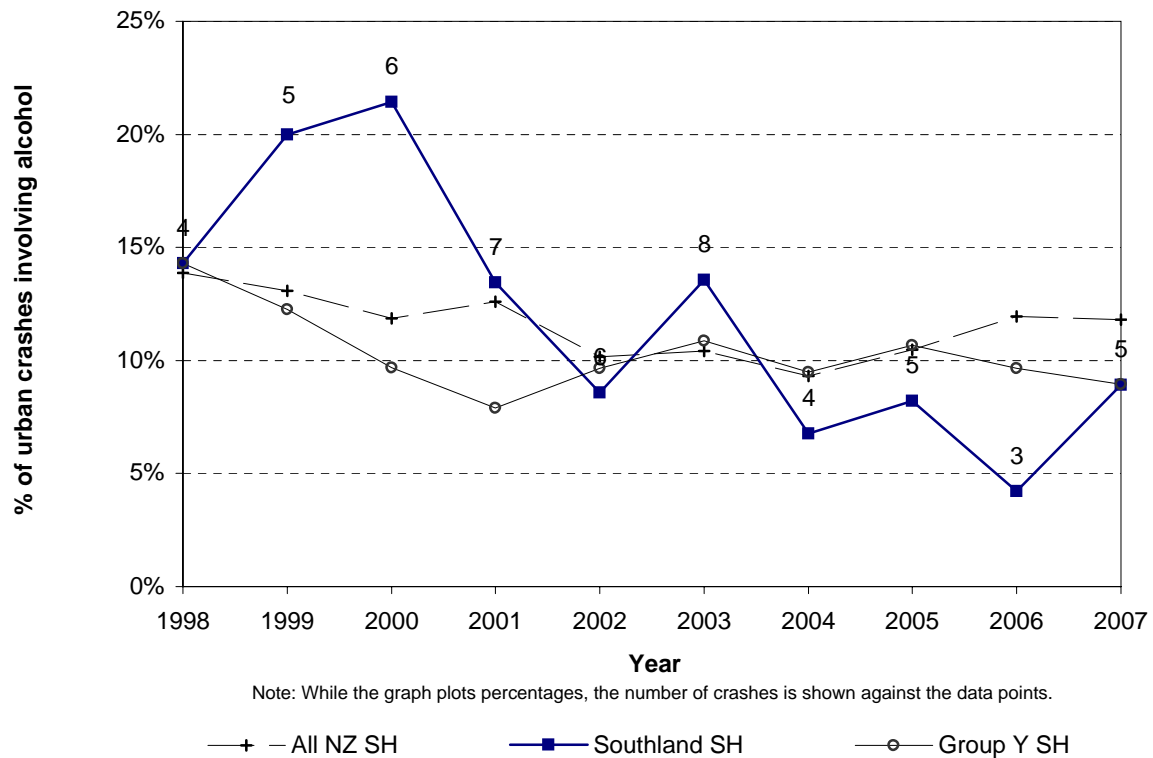
**Figure 5.5 Contributing factor trends  
Southland Region - urban state highways**



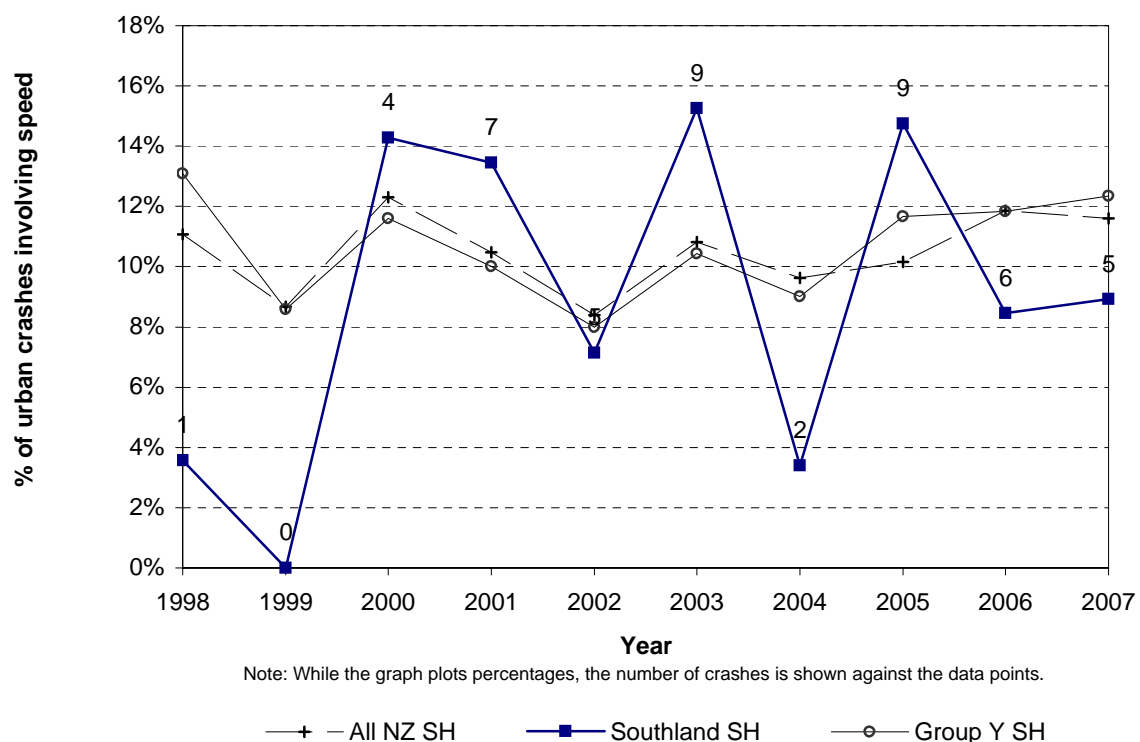
**Figure 5.6 Contributing factor trends  
Southland Region - urban state highways**



**Figure 5.7 Alcohol involved trend  
Southland Region - urban state highways**

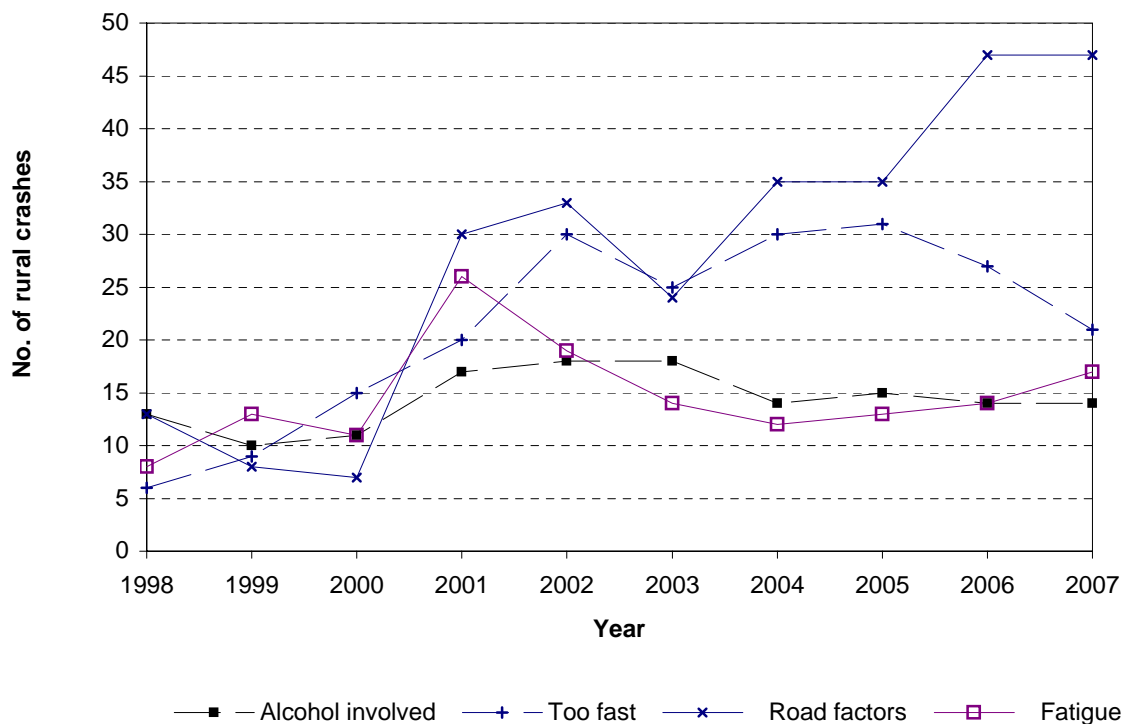


**Figure 5.8 Speed involved trend  
Southland Region - urban state highways**

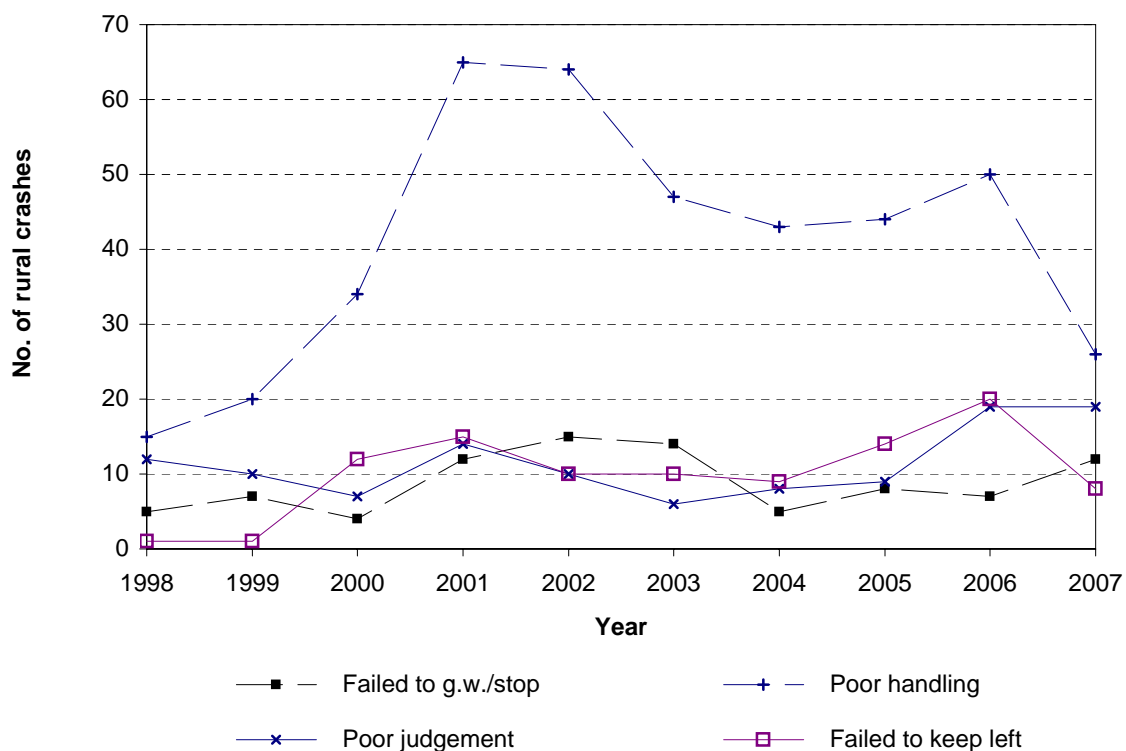




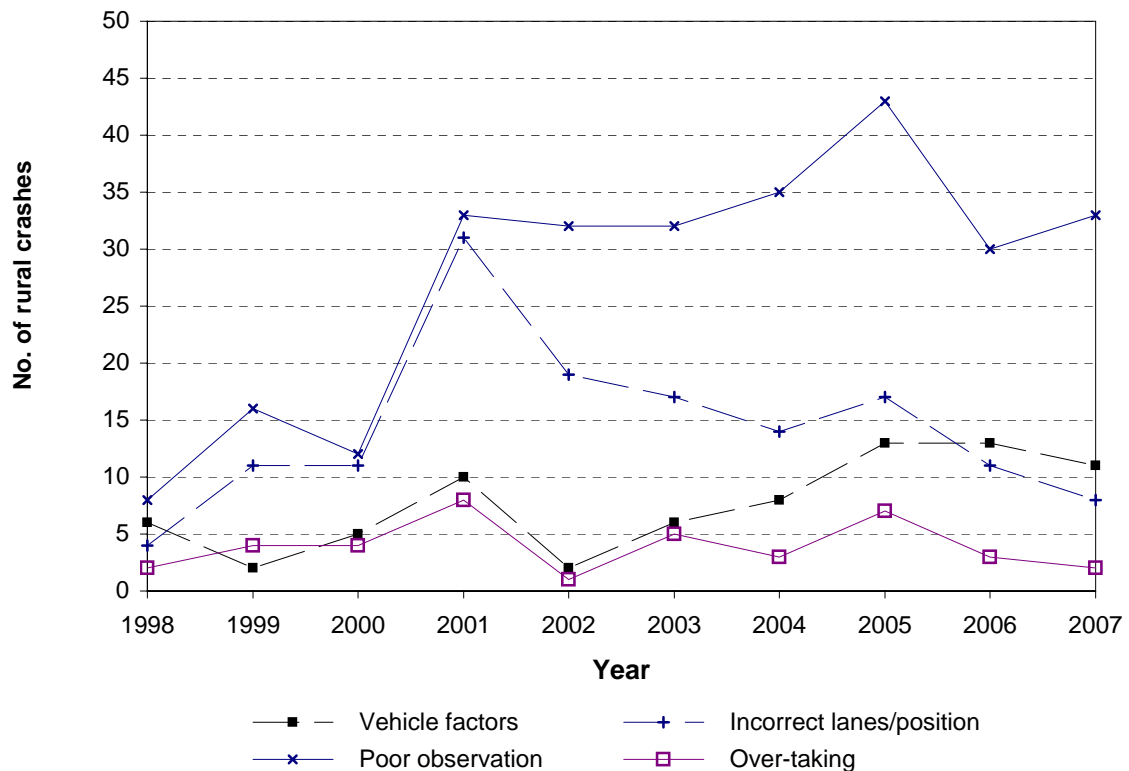
**Figure 5.9 Contributing factor trends  
Southland Region - rural state highways**



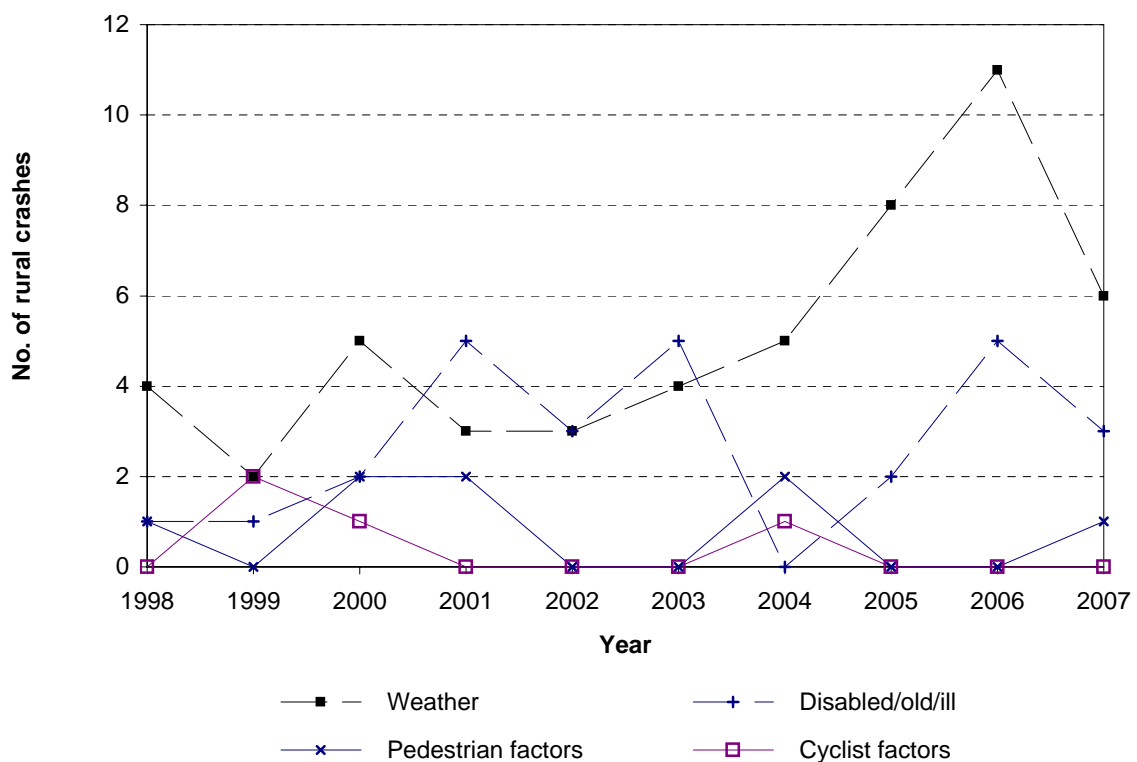
**Figure 5.10 Contributing factor trends  
Southland Region - rural state highways**



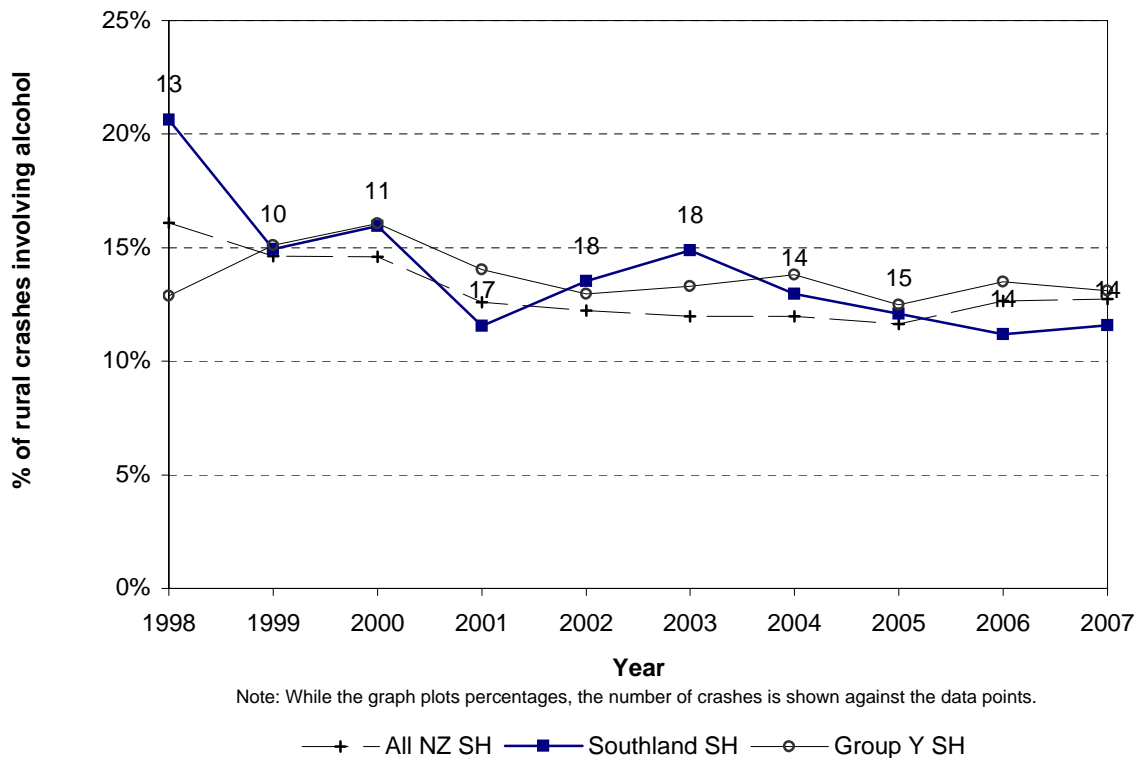
**Figure 5.11 Contributing factor trends  
Southland Region - rural state highways**



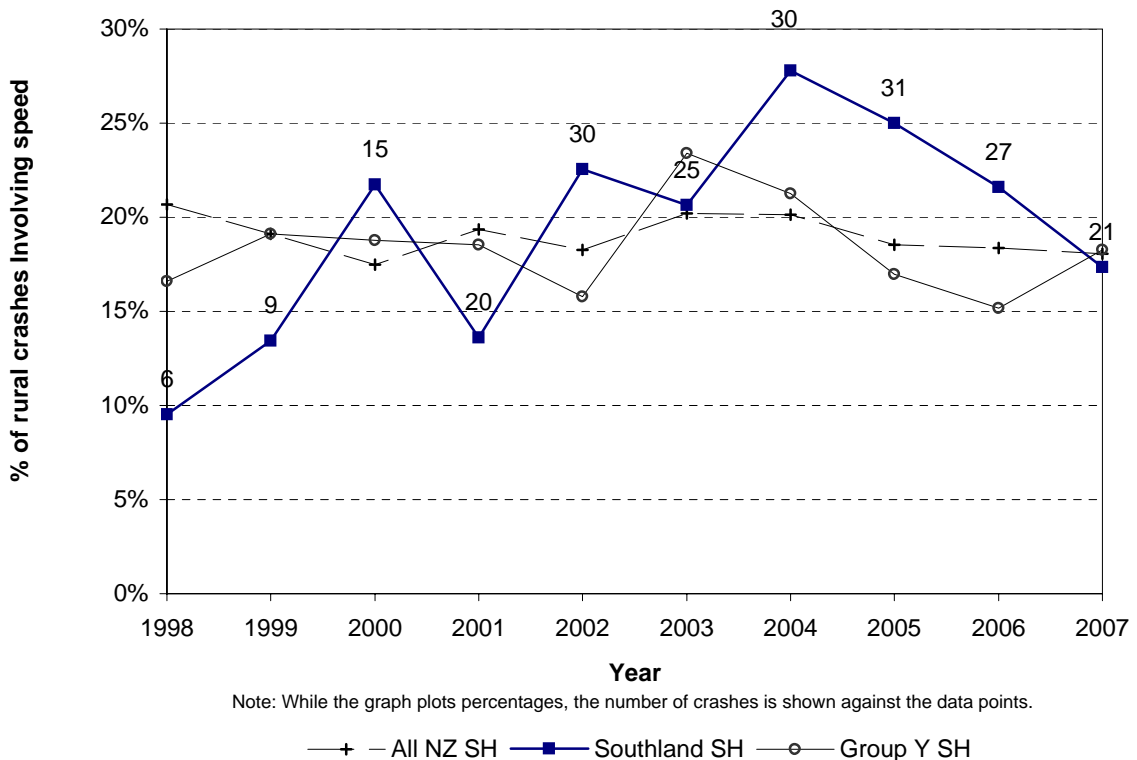
**Figure 5.12 Contributing factor trends  
Southland Region - rural state highways**



**Figure 5.13 Alcohol involved trend  
Southland Region - rural state highways**



**Figure 5.14 Speed involved trend  
Southland Region - rural state highways**

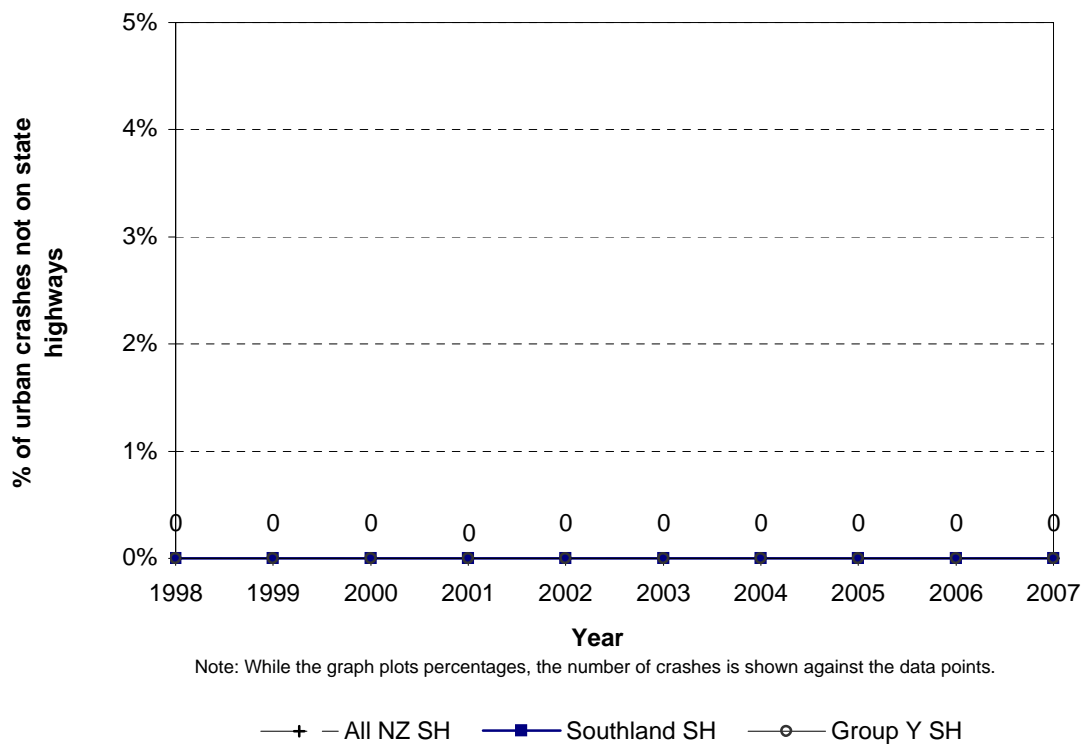




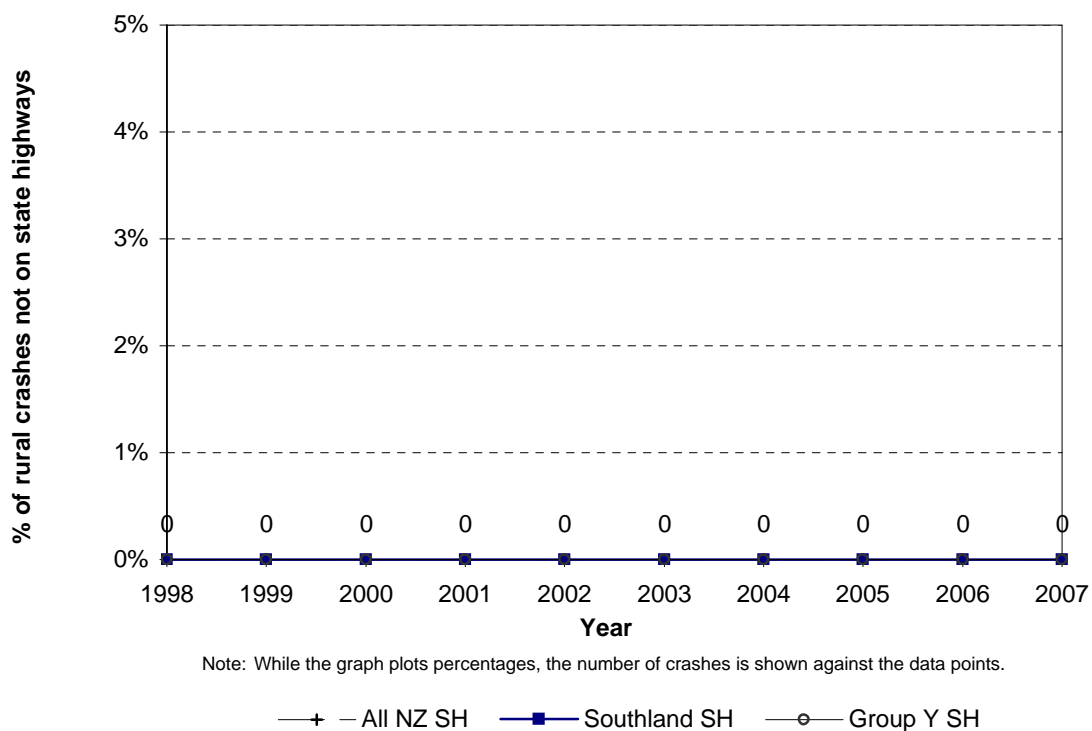
# *Environmental statistics*



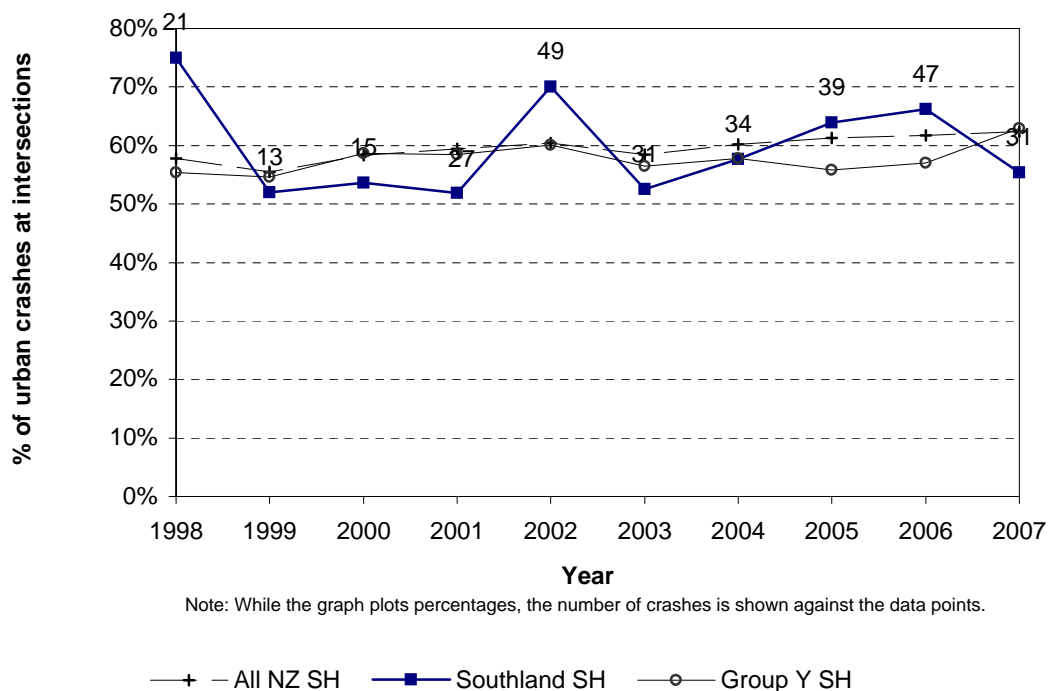
**Figure 6.1 Crashes not on state highways  
Southland Region - urban state highways**



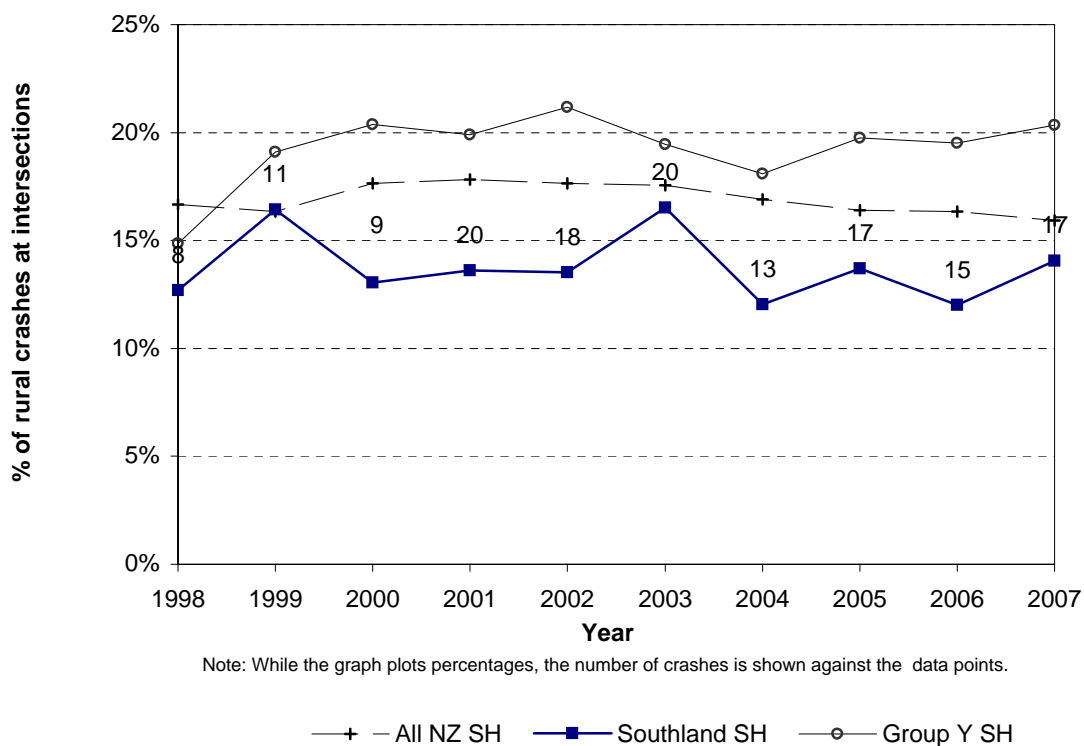
**Figure 6.2 Crashes not on state highways  
Southland Region - rural state highways**



**Figure 6.3 Intersection crashes  
Southland Region - urban state highways**

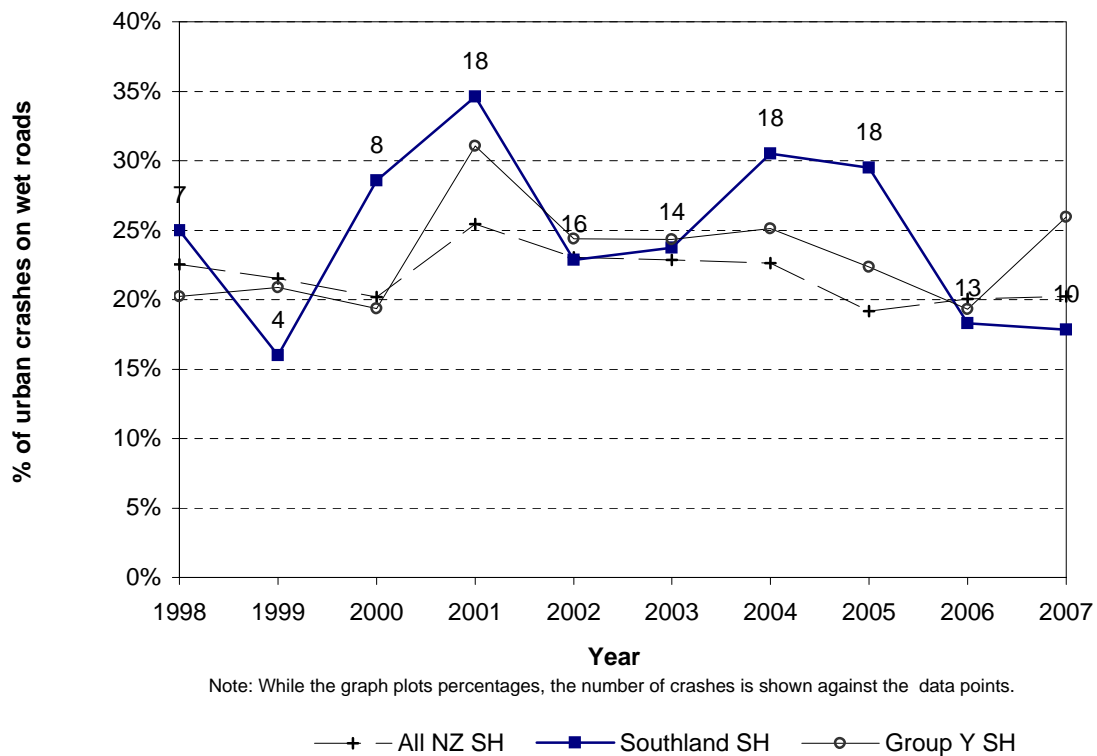


**Figure 6.4 Intersection crashes  
Southland Region - rural state highways**

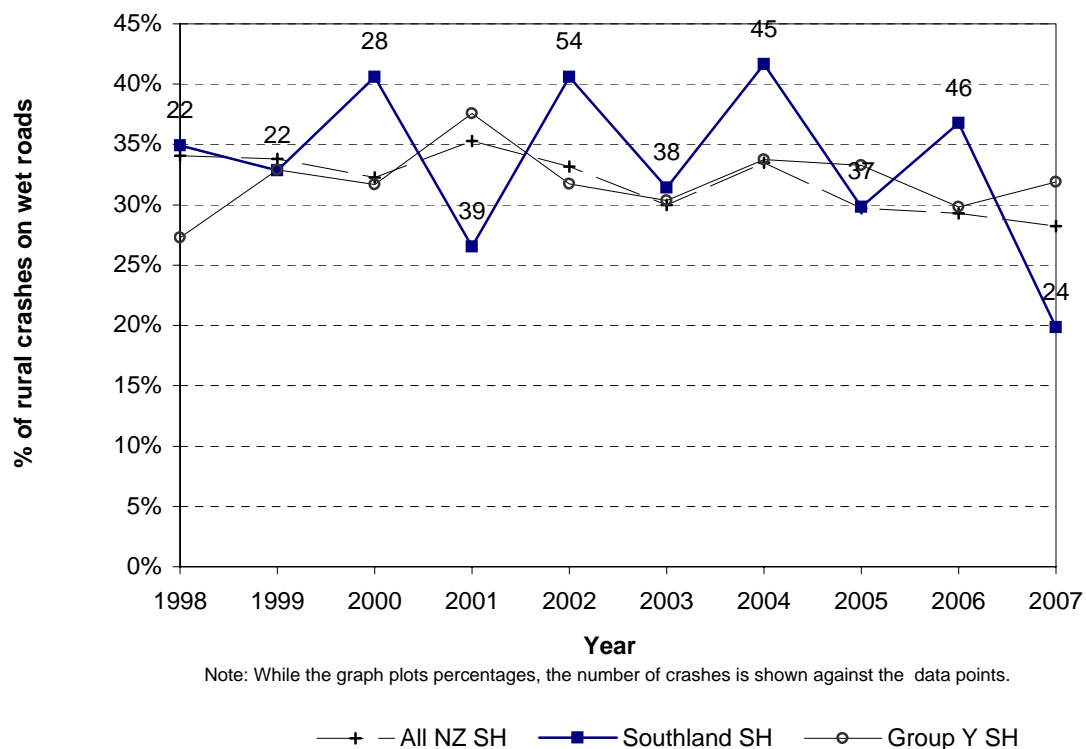




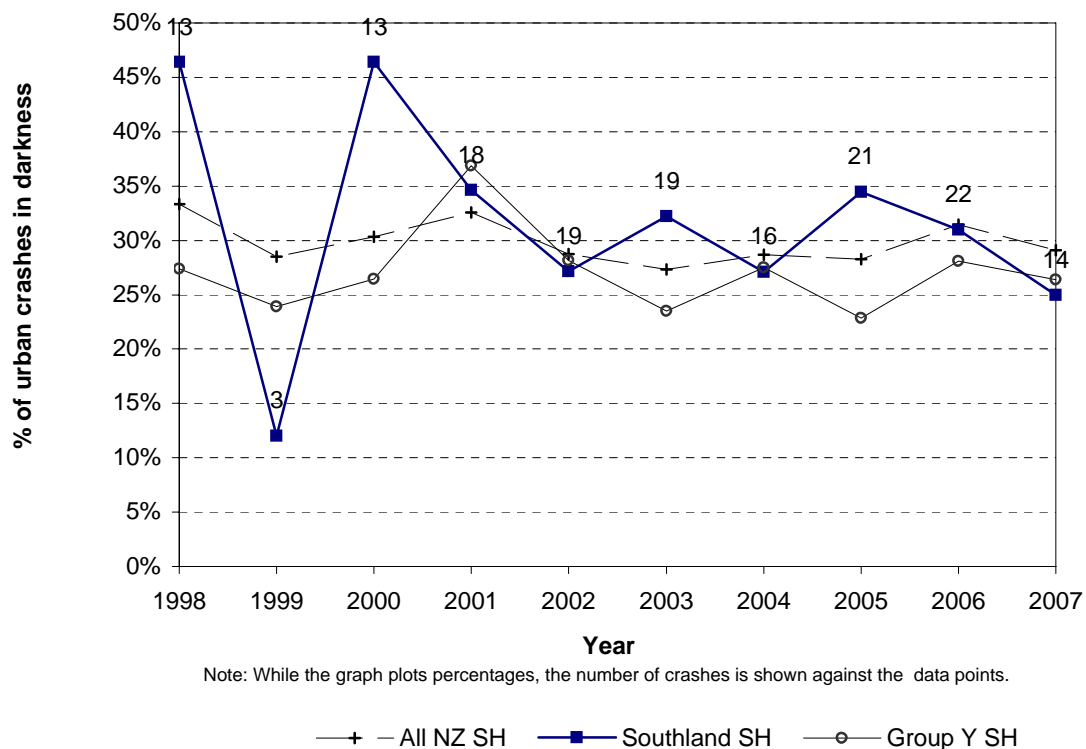
**Figure 6.5 Wet road crashes**  
**Southland Region - urban state highways**



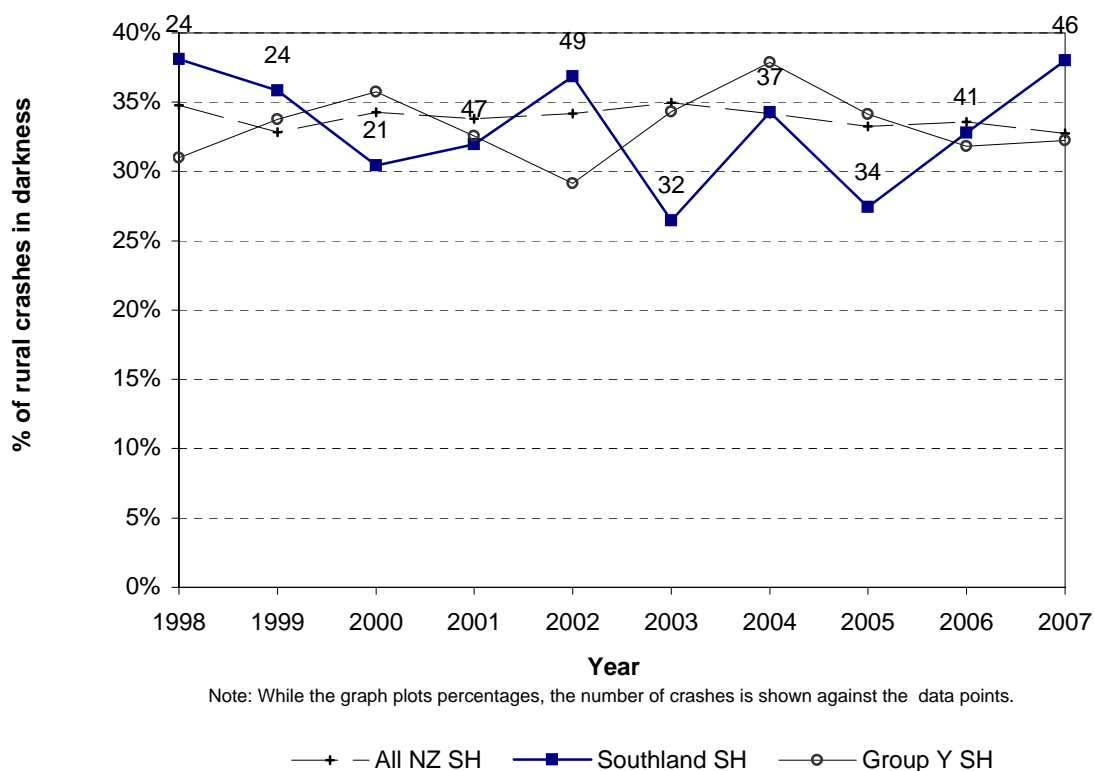
**Figure 6.6 Wet road crashes**  
**Southland Region - rural state highways**



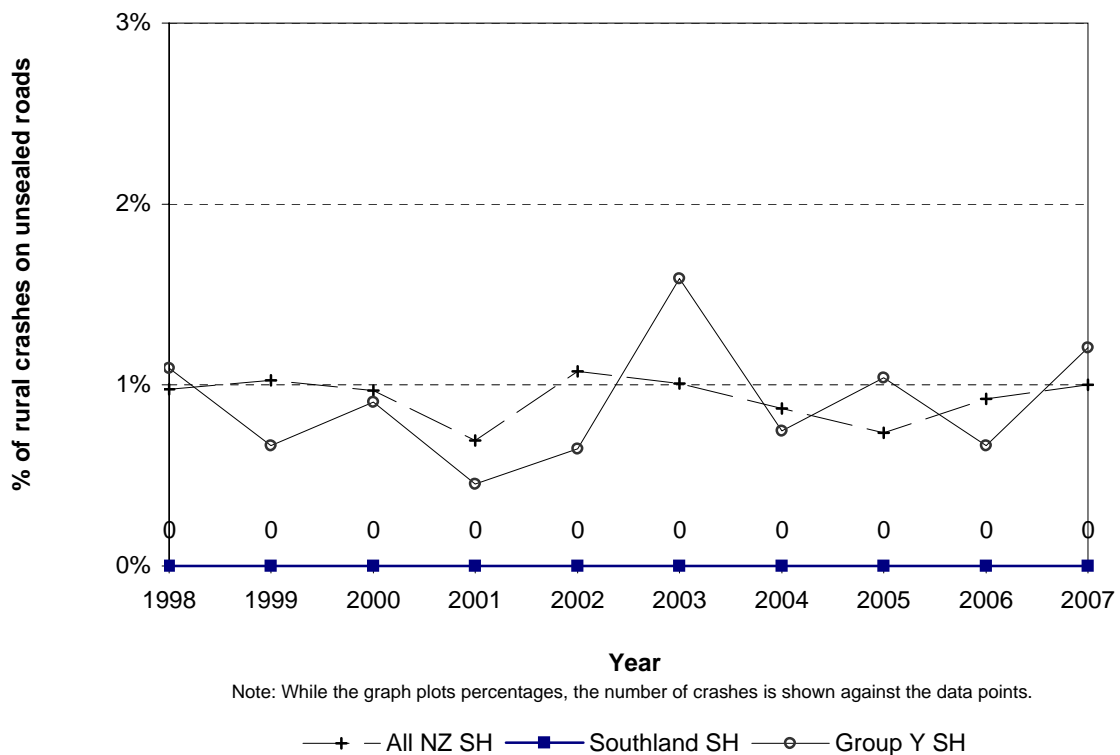
**Figure 6.7 Crashes in darkness  
Southland Region - urban state highways**



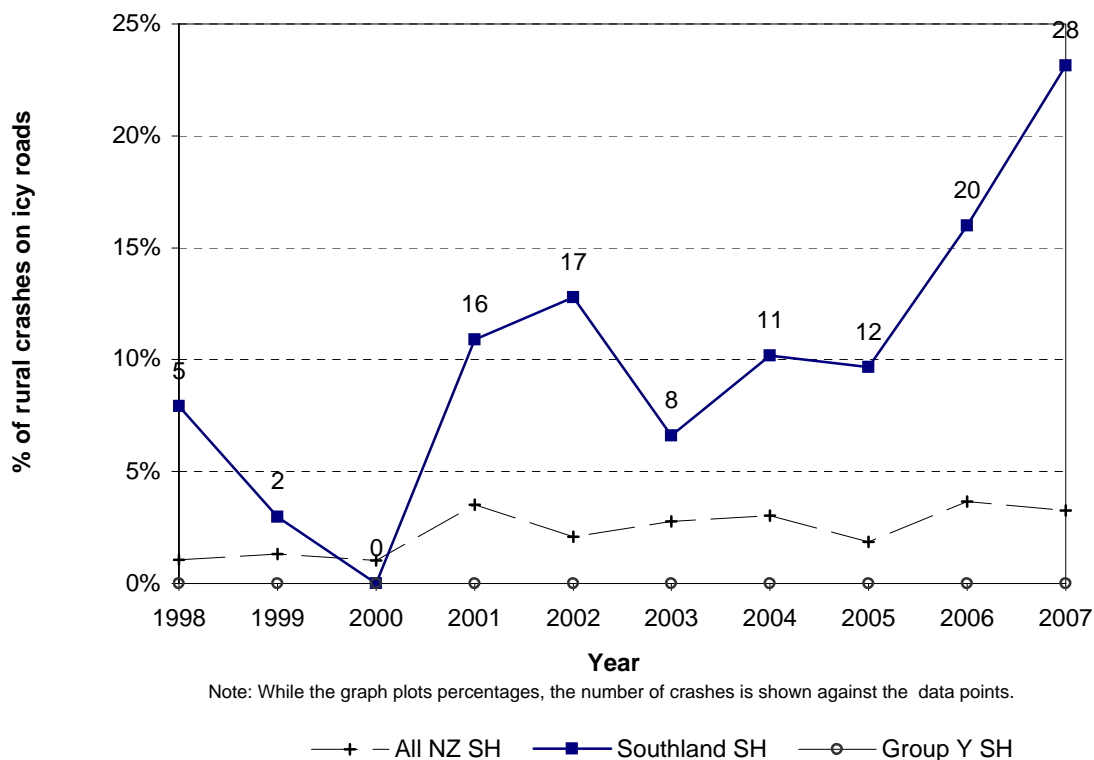
**Figure 6.8 Crashes in darkness  
Southland Region - rural state highways**



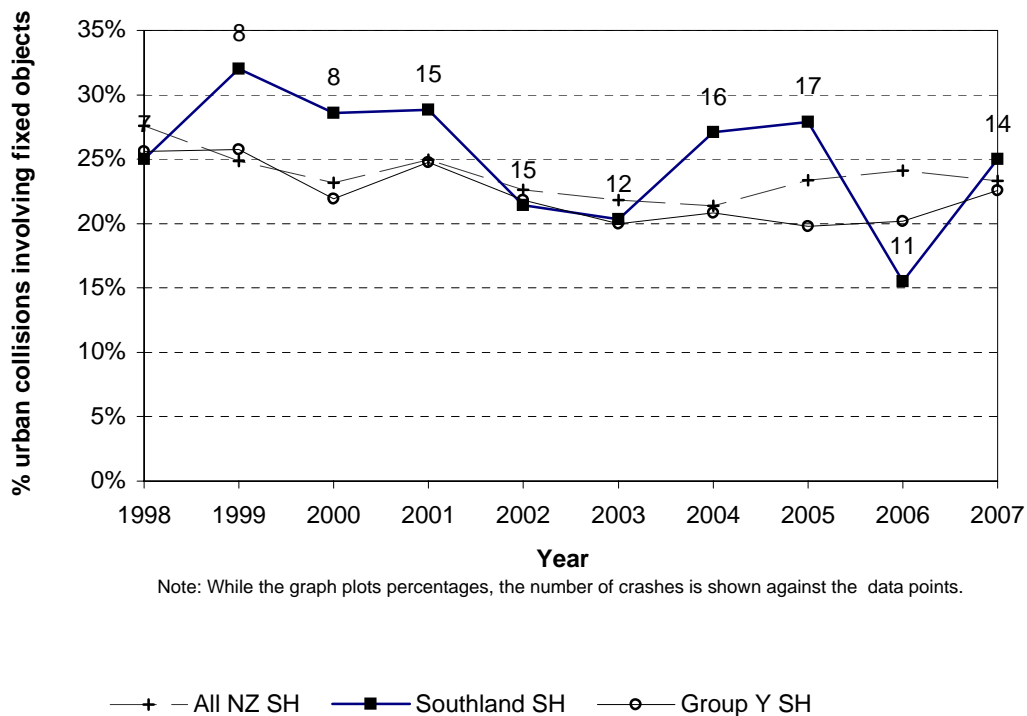
**Figure 6.9 Unsealed road crashes**  
**Southland Region - rural state highways**



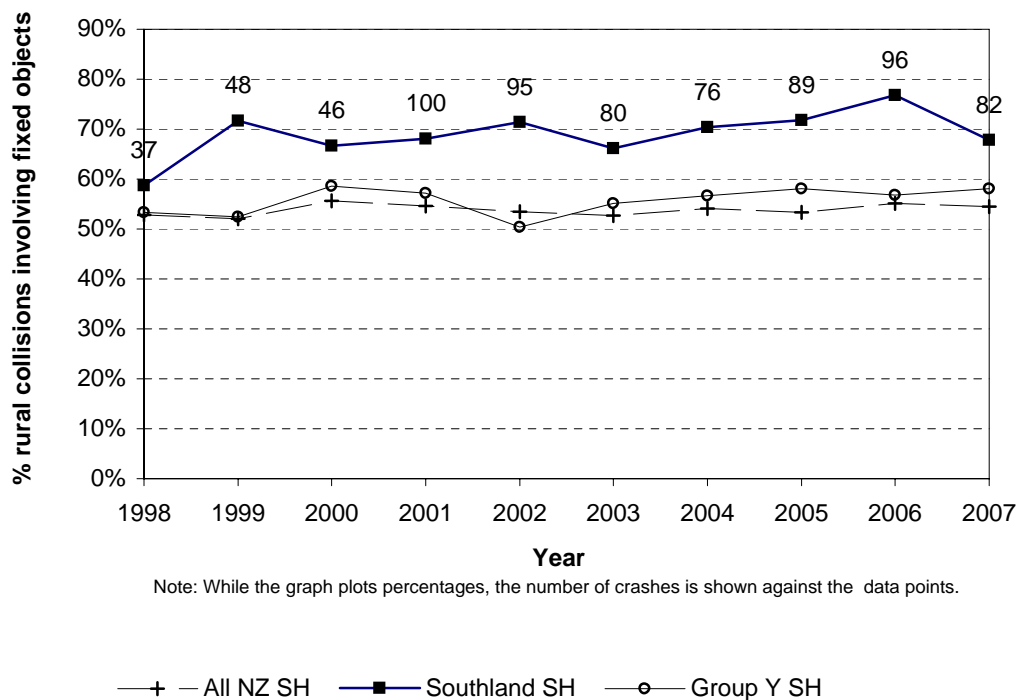
**Figure 6.10 Icy road crashes**  
**Southland Region - rural state highways**



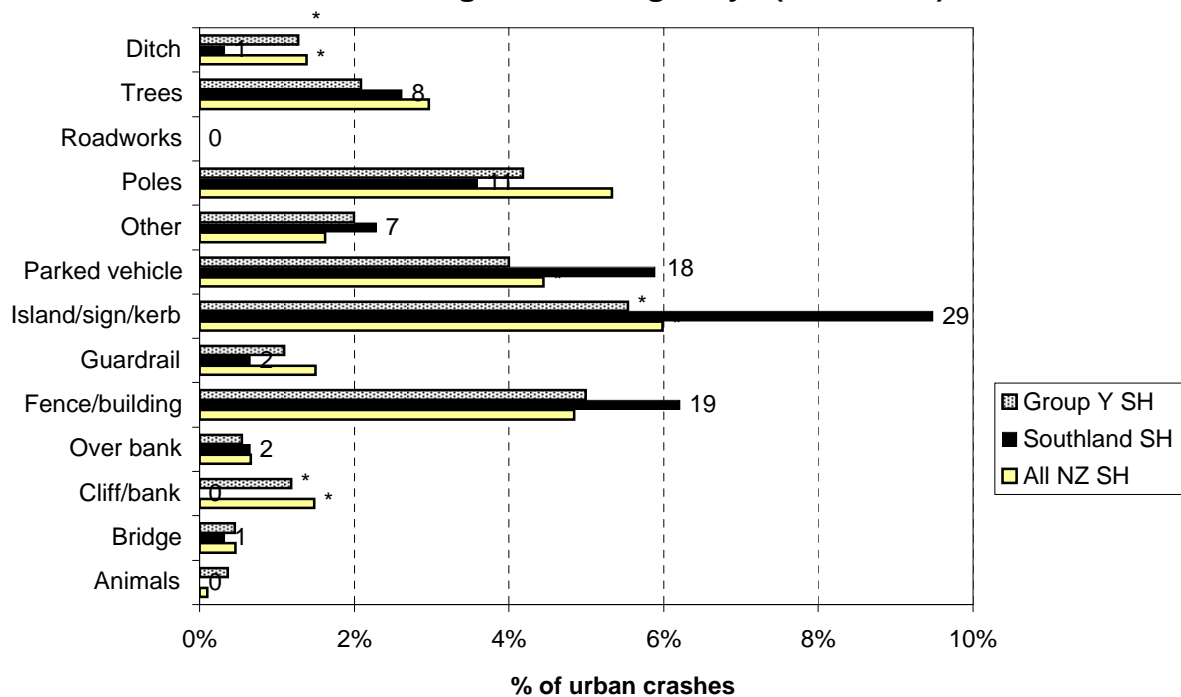
**Figure 6.11 Collisions with objects  
Southland Region - urban state highways**



**Figure 6.12 Collisions with objects  
Southland Region - rural state highways**

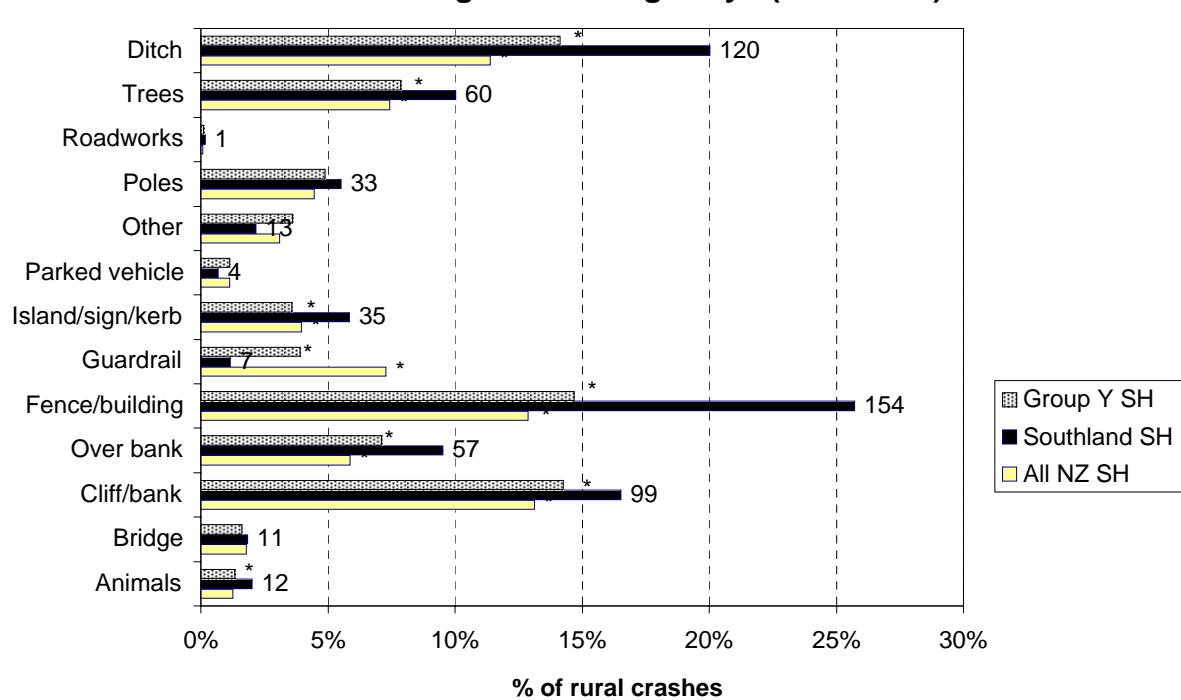


**Figure 6.13 Objects struck - urban  
Southland Region state highways (2003-2007)**



Note: While the graph plots percentages, the number of crashes is shown against the data points.  
\*Denotes statistically significant difference between Local Authority and National or Peer Group Proportions

**Figure 6.14 Objects struck - rural  
Southland Region state highways (2003-2007)**



Note: While the graph plots percentages, the number of crashes is shown against the data points.  
\*Denotes statistically significant difference between Local Authority and National or Peer Group Proportions

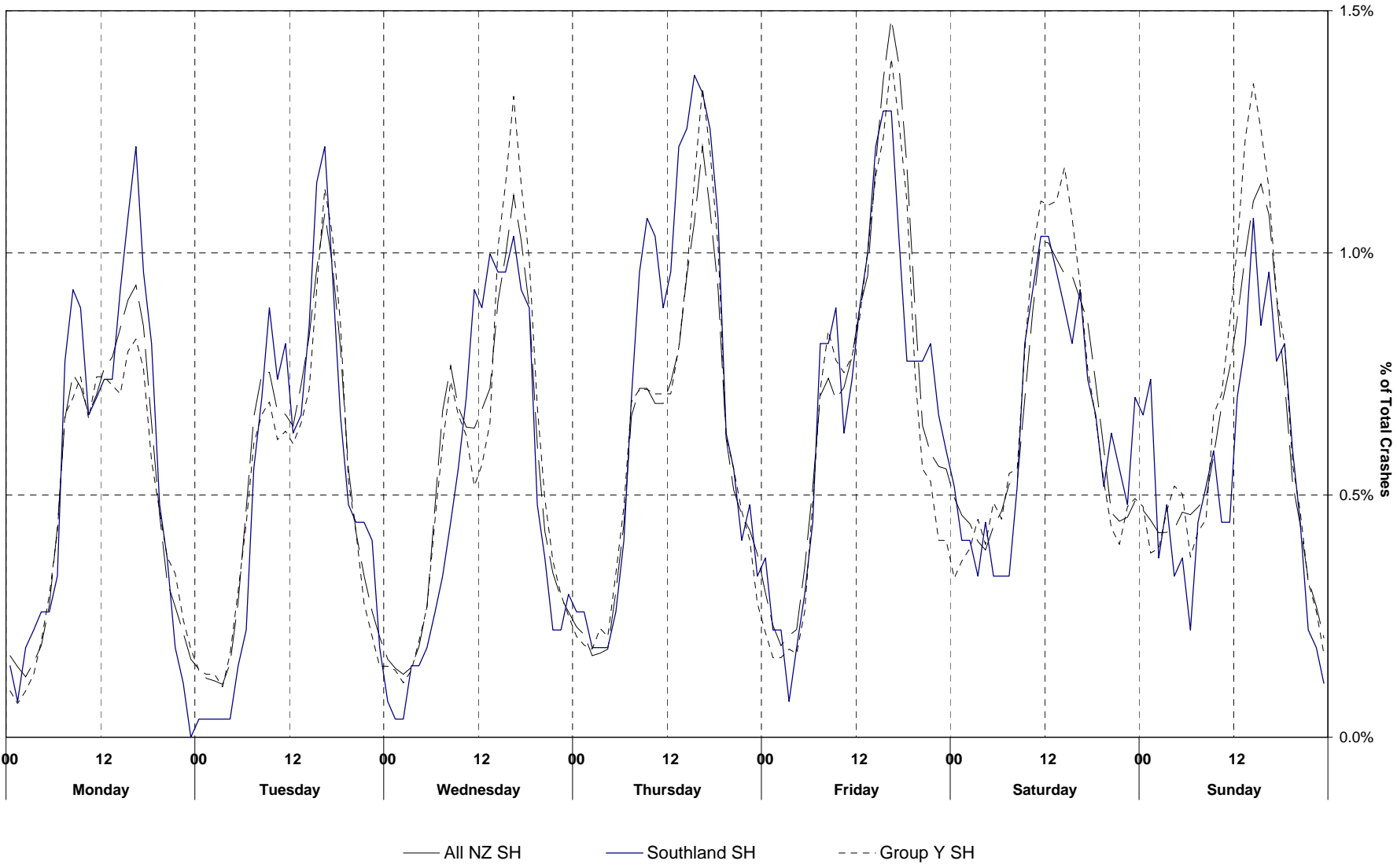


# *Date and time statistics*

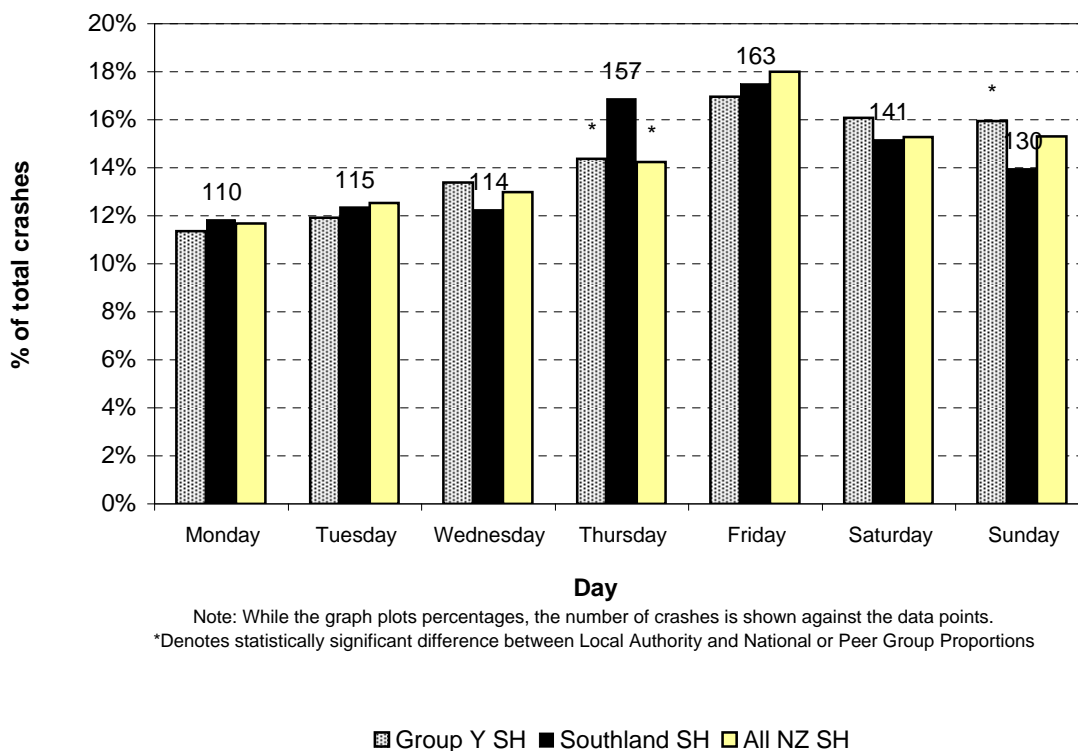




Figure 7.1 Time pattern over average week  
Southland Region state highways (2003-2007)



**Figure 7.2 Day of week (6 a.m. to 6 a.m.)  
Southland Region state highways (2003-2007)**



**Figure 7.3 Month of year  
Southland Region state highways (2003-2007)**

